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LA's COMPUTER MAGAZINE

JULY 24, 1989 • #59

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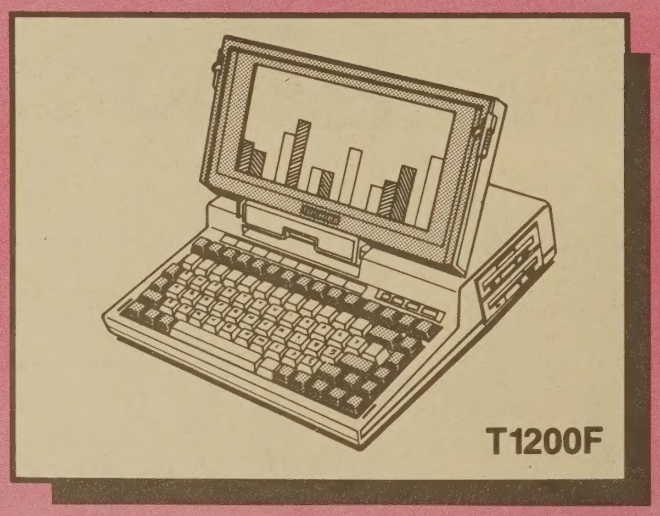

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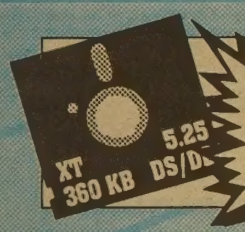

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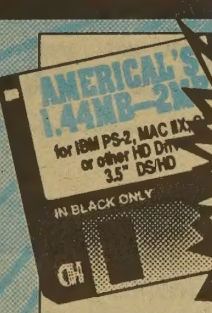

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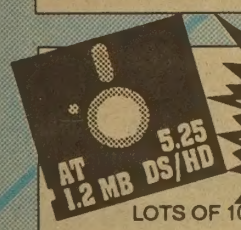

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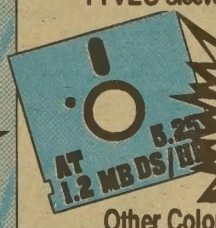

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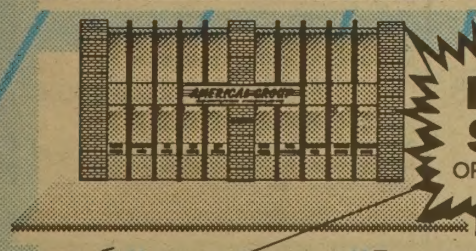

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JULY 24, 1989 ISSUE #59

MICROTIMES™

Cover and contents photos: Michael Jay

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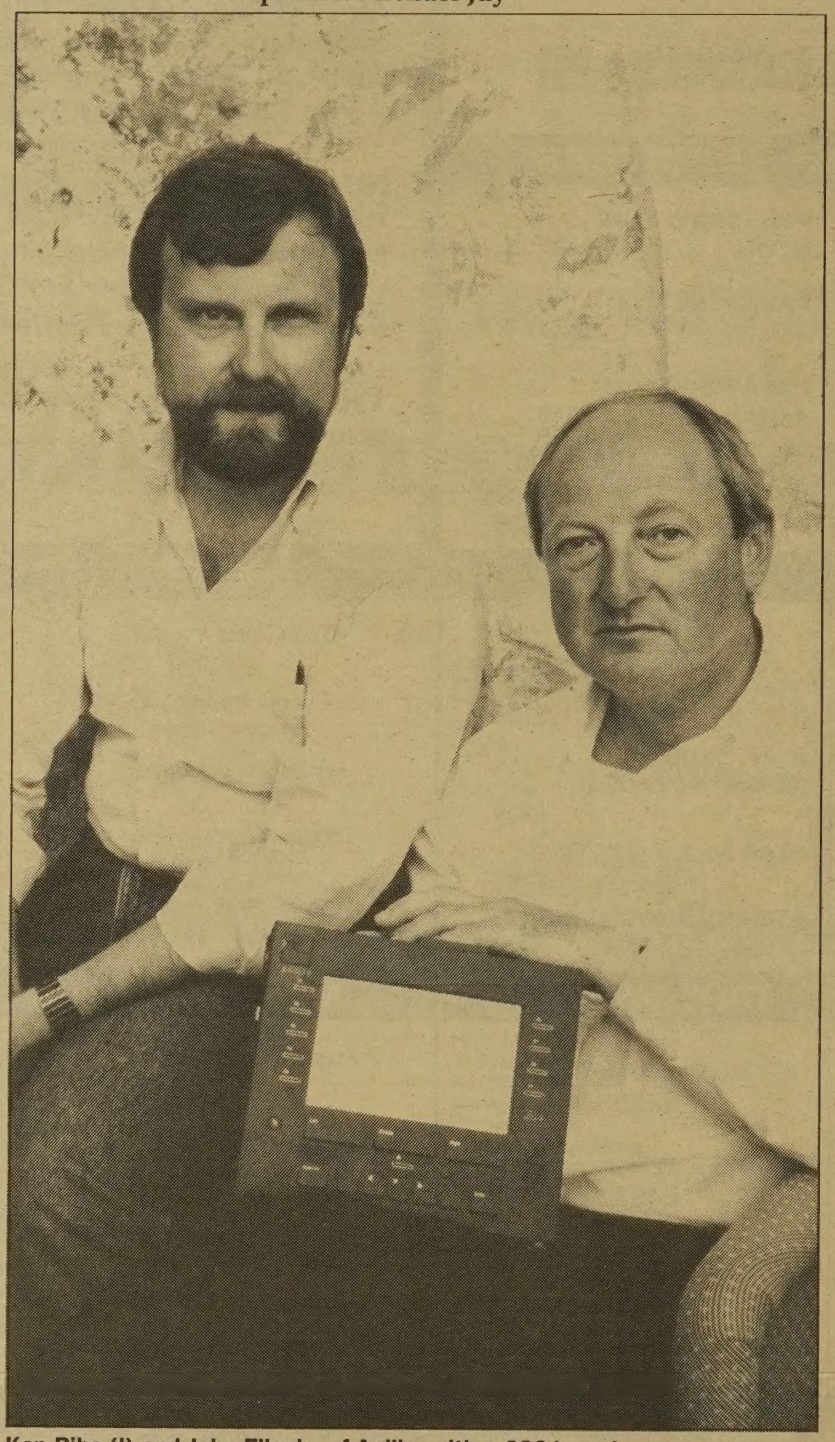

Ken Biba (l) and John Ellenby of Agilis, with a 386-based handheld workstation.

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Due to space limitations, the second part of our interview with Regis McKenna will appear next month.

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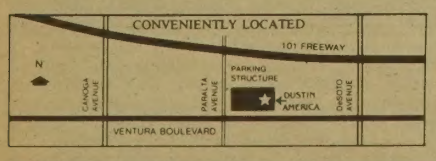

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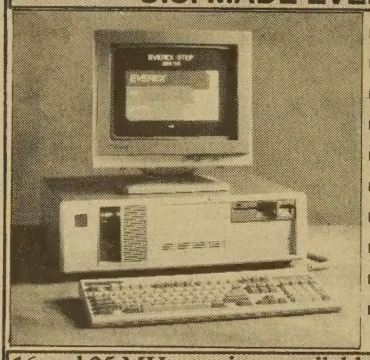

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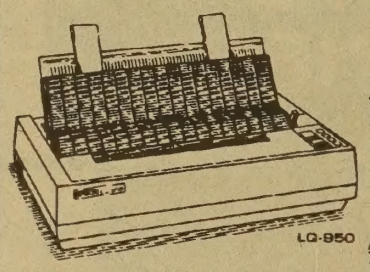

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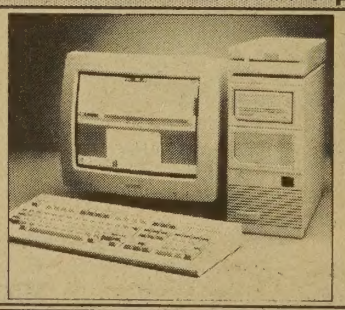

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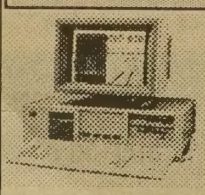

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Forget Batman; Let's Talk Mighty Mouse!

In the late '60s, Doug Engelbart invented the mouse while heading the Human Augmentation Center at Stanford Research Institute. But modern mice still miss two valuable features of Engelbart's hand-carved wooden-cover originals.

Most mechanical mice use two wheels, one rotating horizontally, one vertically. Doug's mice had relatively heavy wheels in direct contact with the desktop. Most modern mice, however, have a ball that rolls on the desk, then two tiny wheels that roll on a ball (an indirect vector?). Therein are lost two useful features of Engelbart's old woody.

Users of the original mice could easily move in exactly horizontal and exactly vertical directions. They just tipped the mouse so one wheel was off the surface; movement was sensed as being in only one direction. No need to pick and click on angle selection or orthogonal direction, nor precisely squirm to remain aligned in densely-packed columns or rows.

Speedy Wheels

Further, a short, vigorous stroke once moved the cursor long distances—the wheels in the old mice were heavy enough to have usable inertia. A user would make a fast, brief motion, quickly lift the mouse, and the wheels would continue to spin for a second, continuing motion in the initial direction without the need for long hand-strokes.

Doug and others from his old SRI project say it was simple to become acclimated to and use such "advanced" features. Ahhh, for the good ol' days.

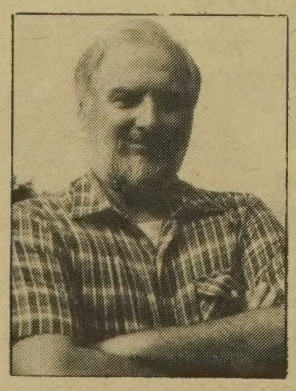
Old War Story: Sharing Won

Mice remind me: when the Lisa, and then the original Macintosh, came out, with their tantalizing user interface and long-coveted mice, I nonetheless refused to get one. I felt their unnecessary, closed architecture was greedy—Steve Jobs' statement was that Apple "would supply the add-ons". It was also self-destructively limiting—Apple couldn't supply desired options anywhere near fast enough for users' wildly diverse, exploding needs.

One evening in my kitchen, Steve and I debated open architecture versus the Mac's closed system that he preferred. I said the open architecture of the otherwise obsolete IBM PC was essential. It allowed numerous independent innovators and entrepreneurs to offer add-ons and fixes fast enough to meet user demands.

But Steve had "won," making the old Mac an unnecessarily handicapped, tantalizing toy that Apple couldn't expand fast enough for potential users. That decision suppressed Apple's growth and market penetration, and gave Big Blew the powerful advantage of having brigades of independent innovators responding to market needs in a timely manner.

Finally, Sculley et al. decided to make the Mac II an open system (more or less)—and look at how Mac's now taken off! I wuz right [grrrr].



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Mouse Religious Wars

Now, you gotta understand: I was enchanted when I first saw the mouse while briefly visiting Engelbart's Human Augmentation project around 1969. I was, again, a covetous-but-untouching observer of mice during visits to X-PARC (Xerox's Palo Alto Research Center), where many of Engelbart's group went when SRI myopically disbanded Doug's project in the mid-70's.

Since I didn't get a Lisa or Mac, I didn't experience their mice except by casual observation. When *AutoCAD* finally offered mouse-ssential power on the PC, I promptly got a mouse from Logitech. A three-button mouse. Of course.

"Of course," because I have three free fingers available after grasping the mouse between thumb and little-finger. And I like maximum utility.

It was only after a year or two of convenient use that I discovered there was religious fervor over the [im]morality of allowing users multiple buttons on a mouse. Only then did I notice that some mice had only one button—appropriate for multiple amputees.

Now I'm finally about to get a (open) Mac IIcx—but am saddened that the Mac Priests have permitted the mere masses only unary use of one of their quinary hands (quinary = five, folks).

Paranoid Product Selection

I went to Logitech, rather than some other mouse maker 'cause I knew some folks there; knew their reputation for having quality gadgets and being particularly equitable and responsive to customers—and I think those much-needed characteristics are especially worth supporting.

I'm getting a Mac IIcx, rather than a II or IIx or SE/30. The II was the first open architecture Mac; I dislike being the field tester for major engineering changes. As I hear it, Apple will provide better upgrade support for the IIcx than for the IIx. Also, I'm not about to squeeze into an old-Mac sized, monochrome SE/30 when I can have the growth opportunities of a IIcx. (For portability, I'll wait for the LapMac.)

More Font Mania

I'm always enchanted by inexpensive text-nology. Digi-Fonts, Inc. have added some flashy options to their LaserJet typefaces. From the beginning, users could size their 260+ softfonts from 3.0 points to 720.0 points (72 points = 1 inch), slant 'em, rotate 'em, flip 'em and reverse 'em—all part of their basic utility.

The open architecture of the IBM PC was essential. It allowed numerous independent innovators and entrepreneurs to offer add-ons and fixes fast enough to meet user demands. Finally Sculley et al. decided to make the Mac II an open system—and look at how Mac's now taken off!

The 2.0 upgrade now allows outlining with lines of any thickness, filling with any of 12 patterns, and shadowing (3D effect) in any direction and depth.

I know of no better softfont deal: it's a nickel less than $90 for the first fix—eight scalable typefaces plus the fontmaking program, and a nickel under $50 for each additional eight-typeface package. These include several hundred non-ASCII characters—everything from "vote boxes" and "check marks" to symbols for math, astrology, OCR, Greek, and Hebrew. Twenty-dollar installers are available for *Ventura*, *PageMaker*, *WordPerfect*, MS *Word*, etc. Digi-Fonts is at (800)242-5665 in Golden, Colorado—gloriously tax-free for non-Coloradian mail orders, run by some of the most reputable folks I've known in our 15-year micro-industry.

After Math

Wonder if value(?)-added resellers are offering cynical astrologers and tabloid publishers programs that produce horrorscopes by randomly choosing among a few thousand admonitions? For example, "Share leisure time with a co-worker." Or, "You will mix the spiritual and romance tonight." Or, "Before advising, think of legalities." Etc.

Mouse inventor Doug Engelbart, upon becoming an adoring grandparent (again), gently quipped: "Babies—Good grief."

Tout Tantalizing Techno Thoughts

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LETTERS

Education: The Debate Rages

Jim Warren's June column "Decent Education: A Realizable Fantasy?" prompted a deluge of responses. In the interest of promoting the relatively free exchange of ideas that has been one of the major benefits of personal computing, we're printing some readers' comments and Warren's responses.

It has been suggested by various respondents, as it was suggested to David Bunnell of PC Week *when he wrote his famous Atlanta editorial some years back, that it is "inappropriate" for a computer publication to address issues beyond the bits and bytes. As our past coverage of issues from free speech to gender equality might suggest, we disagree. The products you buy, the tools you use, and the options you have for using them are profoundly influenced by factors beyond benchmarks and product announcements. High-tech corporations work extensively to influence legislation; industry leaders such as John Sculley and Robert Noyce actively endorse political candidates and testify before Congress on matters of concern to their companies' and the industry's perceived interests, often on issues such as education policy.*

Intelligent and strongly opinionated people, often with overt or hidden social engineering agendas in radical disagreement from each other, created the personal computer industry and continue to be one of its distinguishing hallmarks. The people, the ideas, the long-term picture, and the products are inextricably intertwined in this industry; as numerous research institutes and industry analysts will attest, none of this occurs in a vacuum.

We strongly urge readers to write to us and express their views, and we expect at least as wide a variety of viewpoints from that quarter as we get from our writers, an intelligent and strongly opinionated lot who rarely agree among themselves.

—Mary Eisenhart

Greed?

I agree with Jim Warren that US schools are in a sorry state, and that it's entirely the fault of money-grubbing union zealots and faculty deadwood. With the kind of broad political and financial support teachers enjoy from this society, only shirkers and fanatics would waste time on pointless, disruptive unionization.

I was shocked to discover that teachers are paid so much for such easy work. It's disgraceful that after 20 years a teacher might be making as much as the average Silicon Valley engineer. All those creeps care about is money; just look at the number of money-grubbing teachers who take temp jobs during their overlong vacations. Despite the massive outpouring of public support that always follows unions' demands for smaller classes, more prep time, and better facilities; despite the warm reception such sensible changes receive from school boards and administrators; and despite the fair, balanced reporting of both economic and non-economic contract issues by journalists like Warren—teachers always settle for higher salaries alone. As President Bush said recently, schools don't need more money, they need more dedication.

As Warren suggests, we should all write to our state legislators demanding modification of tenure laws, lower teacher salaries, and elimination of cost-of-living increases. When tenure is weakened, districts will be able to fire the greedy teachers high up the salary schedule. Then the winning combination of lower pay and less job security will ensure that the entry-level teachers who replace them are truly dedicated. Better yet, follow the lead of those progressive districts that hire mostly part-time teachers. Not only do they get paid less, but the district doesn't have to waste all that money on health insurance or retirement plans.

Once upon a time America knew how to handle troublemakers, but, as in so many other fields, we've lost our lead to foreign competitors. While we study field leaders like Poland for long-term solutions to the problem, parents must have the right to choose. Concerned parents from various communities—the affluent, the creationist, the caucasian—have taken steps to ensure top-quality education for their children by starting private schools. Such defenders of quality education must be free to redirect their tax dollars from corrupt public schools to these superior institutions.

Jim, why waste your wisdom on the computer industry? School districts pay up to $100,000 a year for such insightful union-busting advice. It would be terribly sad for us *MicroTimes* readers to lose your monthly dose of wit, but we could take consolation in your moving on to a better cause.

Robert Lauriston
San Francisco

Politics: The Path To Insolvency?

It seemed unusual—a political article in a computer mag? In case you are planning on more of the same in the future, I wish to express my opinion. I hate to see articles like Jim Warren's that might hasten your demise for the following reasons, generally accepted by the owners of solvent non-political magazines.

1. One-sided political articles on evenly divided controversial subjects can cost you up to 50% of your customers if you persist long enough.

2. Most of your customers have some college education. Early in college most students are taught that arguments by analogy such as Warren used have no true argumentative value and are only useful for politicians talking to uneducated groups.

3. Many persons react very negatively to self-serving demands such as Warren's desire for a government subsidy to help him send his children to private school.

Please keep publishing a good magazine *about computers!*

Charles M. Larson
Whittier

Jim Warren responds:
Avoid politics? Oh, come now. Should tech rags shun mention of political issues impacting DRAM price/availability, export snarls that hamper our international competitiveness, regulations limiting digital-audio features, public access to unclassified databases, or look-and-feel litigation and legislation?

Or is it only the quality and costs of our education system—that pervasively impacts our technological and national future—for which we should avoid proposing improvements?

Controversy causing demise? One publisher of "non-political" periodicals who habitually published highly-biased political content remained sufficiently solvent to build a castle in San Simeon. Other refuting examples abound.

But we agree: If political and social diatribe dominated these pages, technologists would probably pick up fewer of our free copies. However, it doesn't, and they won't. Those discomforted by such relatively rare content may quickly avert their eyes, lest they encounter disturbing thoughts. Nonetheless, the costs and harm of such disregard will continue/escalate until enough people collaborate in designing and implementing positive change—which requires discussion of alternatives, even controversial ones.

Although Hearst remained solvent without editorial balance, MicroTimes *prefers to air opposing views. Note that these letters on this subject far exceed the length of the original column.*

Regarding analogy: Obedient drones might be trained to blindly avoid analogy. However, intelligent individuals constantly utilize analogy as a powerful tool enhancing learning, comprehension, and insight. To avoid its pitfalls, one simply evaluates analogies for accuracy of fit.

As for seeking self-serving subsidies for private schools: I have no children to be so self-served, and I am Trustee of a 25,000-student public school district.

However, be assured: We, the people, WILL pay the costs of the quality of our childrens' education—by government subsidy and personal expense. We may subsidize—and demand—well-prepared, conscientious, diligent teachers, and vigilently dismiss the minority who are costly deadwood. Or, we WILL incur ever-increasing costs for ill-educated fellow workers, sloppy engineerin,g and shoddy service (technology issues), plus escalating costs of public welfare, emotional illness, and a massively-expensive criminal justice system.

Misguided Fantasy

Re Jim Warren's article "Decent Education: A Realizable Fantasy" in *MicroTimes*, perhaps "misinformed fantasy" or "wishful thinking fantasy" would be a more appropriate subtitle for his article.

First, about the CBEST examination: the teachers' unions opposed it when it was proposed. The CBEST was among the package of reforms by then newly elected Superintendent of Public Instruction Bill Honig. The requirement that substitute teachers pass the CBEST examination was not, as Mr. War-

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ren's article would have one believe, a plot proposed by the union to prevent strikebreaking. Many school districts today, despite Warren's glowing account of the pay and working conditions of teachers, must fill its vacancies with long-term substitutes. Honig wanted to make sure that those substitutes had passed the CBEST. Honig wanted to close all potential loopholes that would permit what he termed "unqualified" persons from entering the teaching profession.

Most teachers, both union and non-union, consider the test demeaning. The blame for the CBEST test can be found in those colleges and universities that allowed their academic standards to be ruined by corrupt athletics programs. Some individuals, who were products of those programs, gained degrees and teaching credentials and proved to be virtually illiterate. It had nothing to do with teachers' unions and it had everything to do with Alumni Associations and wealthy sports boosters with warped sets of values. It remains true today all across America that more people care about what happens at the Friday night football and basketball game than what happens five days a week in the classroom.

The CBEST examination is administered and regularly scheduled by Educational Testing Service in the same way as the SAT and the GRE. Once the CBEST has been taken, it takes four weeks to get the results. These are the same ground rules that apply to the SAT and the GRE. A passing score on the CBEST examination is required of *all* new candidates for all educational certification in the public schools (12th grade and below).

Now that the Los Angeles strike was quickly settled, isn't it curious that there was no surplus of college-educated people who wanted to take up his challenge? He might wonder why.

In the Los Angeles Unified School District in the past year, one female seventh-grade teacher was stabbed in the back and had to be hospitalized for five days in intensive care. A highly experienced and well-regarded high school teacher was shot to death. A third teacher had to grapple and disarm a ninth-grade student who had brought a loaded .357 Magnum to school. A woman substitute in an inner-city junior high school had her eye poked out in the classroom. I have listened to other women who told me horror stories of assaults in the classroom. Hardly a week goes by that doesn't include incidents of gunplay among the students surrounding inner city schools in Los Angeles. The Los Angeles Unified School District has armed, sworn police officers following school buses in squad cars to and from school. One school, located next to a housing project, had to erect a nine-foot concrete fence to prevent stray bullets from hitting elementary school children at recess.

When the United Teachers of Los Angeles called their strike, which had been deliberately provoked by Superintendent Leonard Britton, and what a mistake he made, the number of striking teachers exceeded the total union membership by at least 1,000 teachers. Mr. Warren might be mad as hell, but the Los Angeles teachers are under siege and are not much impressed with blowhards back on the home front who think they are experts on public education.

Mr. Warren can blame the teachers' union for poor education in the schools if he wants, just as he can believe that the earth is flat. He can use a "by the numbers" analysis of the pay and working conditions of teachers that very conveniently excludes unpaid weekends spent correcting papers, unpaid summers preparing lessons, and in fact does not compensate most of the time that goes into teaching. Mr. Warren ignores [the fact] that teachers are required to work for free for an entire year before being admitted to the profession.

With all the supposedly great working conditions of teachers, Mr. Warren cannot explain why fewer than 700 people answered the call to replace 20,000+ striking teachers in Los Angeles. After all, the money offered to strike breakers was 67% higher than for normal substitute teaching. There are certainly more than 700 certificated teachers available to work as strike breakers in Los Angeles. Maybe they know something Mr. Warren does not.

In fact, since Mr. Warren is so badly informed about public education in California, I am going to openly challenge him to follow his own advice. In the Old West spirit of "put up or shut up," Mr. Warren, by all means, do follow your own advice. Take the CBEST examination yourself. I hope you pass it. If you do, I certainly hope that you apply for a job as a substitute teacher in an urban school district. Don't wait for a strike! Do it now! You, as a new teacher, will be assigned to an inner city junior high school. Volunteer for the worst junior high in your city. That might make you eligible for what LA teachers sardonically refer to as "combat pay." Sign up for English or "Reading." Those classes will provide you with the opportunity to prove that you can survive on the "cutting edge" of the greatest challenge and opportunity in American education.

Even if you turn out to be a lousy teacher, that's all right. Not to worry. Right now, we do not have enough good teachers to go around. Soon, there won't be enough bad teachers to fill the classrooms either. Be prepared to accept all of the blame for what goes wrong in the school system, however, especially if you find that you need to file an employee grievance and—oh, horror of horrors—find it necessary to join the teachers' union.

Take your own advice. Go ahead and do it. If you are not willing to do it, then you are just another phony blowhard who, in the manner of a dog, thinks that public school teachers are your personal fire hydrant. Most persons who talk about "Realizable Fantasies" do not have what it takes.

I doubt that Mr. Warren will follow his own advice; few if any businesses or talented individuals will take him up on his "community responsibility leave."

The only reason I took the time and trouble to write this is that Mr. Warren has an impressive list of credentials. Too bad he doesn't stick to subjects he knows something about.

Richard Rollo
Montebello

Jim Warren: The bio following my columns leaves out some of my "impressive credentials": I also hold lifetime teaching credentials in California and Texas (math & I.A.). Thus, like other experienced older teachers, I can teach without having to pass CBEST.

I was a full-time teacher, 1957-1967—earning $2,987-$7,000 (per year, not per month). Back then, our contracts didn't specify how many hours we were to teach per year, and weekend/evening grading and summer lesson planning was just part of our professional responsibility. I spent several more years as General Secretary of the Midpeninsula Free University (unpaid; earning income as a part-time biomedical programmer).

I also taught in a massive, bureaucratic urban district, and in an inner-city ghetto school where I took switchblades away from gang members, and broke up knife fights in the schoolyard. (I fully accept that things are much worse now in some schools. However, "Blackboard Jungle" was filmed when I was in high school; today's schools have no monopoly on school violence.)

Also, I am in my fourth year as Trustee of a $50-million county-wide community college district.

Finally, I reiterate what I said in May: Most teachers range between competent and outstanding—and should be supported as such, for their business is our future. Incompetent teachers must no longer be tolerated, for their failures harm our future and bring disrepute to their collegues.

***Errors Corrected:** Re CBEST exams—required for regular or emergency teaching credentials: It appears you are correct and I was wrong. I accept that teacher unions originally opposed competency testing.*

Further, the administrator who told me they were prohibited from scheduling CBEST tests in conjunction with teacher strikes has been unable to verify this to me.

Though I share Mr. Rollo's lack of enthusiasm for "athletic supporters," I cannot help but question whether "the blame for the CBEST test...had everything to do with Alumni Associations and wealthy sports boosters." Please send verification.

However, Mr. Rollo has not refuted my other points:

***Harming Students in Teacher Strikes Is Intolerable:** Leaving young children unsupervised by unannounced mass teacher absences, and withholding gradebooks, grades, and college-entrance testing from students and graduating seniors are irresponsible, dangerous union pressure tactics that should not be tolerated.*

Until such behavior is prohibited by law, competent citizens should become qualified to serve as substitutes for such irresponsible "teachers," and employers should grant "community responsibility leave" for such citizenship.

***Parents/Students Should Have Choice:** The taxpayers who pay for educational services should insist that parents and students be permitted to choose their service providers from among available schools and teachers—public or private—that meet state requirements for curriculum and economic and ethnic diversity.*

Some results: Bad schools would probably close—and they should. (Paying teachers more money to remain in dangerous schools is no solution.)

Incompetent teachers would have fewer students upon whom to inflict their educational harm. They would either be fired or the competent faculty would have to agree to support these nonproducers—as is now required under union-supported tenure laws.

***Tenure Protects The Incompetent:** I had no use for tenure when I taught; I have no use for it and the costly incompetents who claim its protection now that I'm paying for it.*

Its mandate by law is bad legislation; teaching is too important to offer job security for nonproducers and incompetents.

***Teachers Should Control Schools:** Physicians hire office managers, but it is the physicians who are (properly) held accountable for their practice, and they control how their offices operate.*

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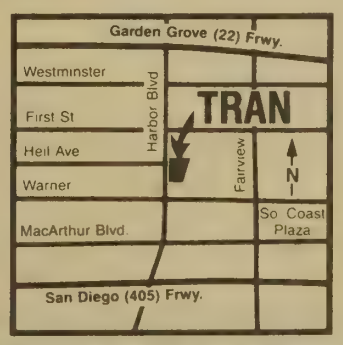

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held accountable for the functioning of their practice, and it is the senior attorneys who oversee and control how their offices function.

Similarly, teachers should control and oversee their schools—as they do their classrooms—for they are the ones who know best what is needed for quality education. Currently, this is possible only in private schools, and occurs in most of the best ones. It should be the case in all schools.

But with this appropriate authority over their schools must also come the responsibility for quality education. And I propose that a good way to assure responsible performance is to allow students and parents to select the school and teacher(s) that receive the education funds ("vouchers") expended on their behalf.

***For Schools, Small Is Beautiful:** The smaller the school (above a minimum essential size), the more responsive it usually is to its clients—the students and their parents. Huge districts (e.g., LAUSD) too often have massive bureaucratic overhead and casual disregard for individual students, parents, and teachers.*

Under a voucher system, the power would return to the individual teacher and school. These huge districts would either become responsive to their "customers" at each local school site—or they would become no more than landlords renting their schools to teacher-groups who serve each school's clients.

What I propose is an imperfect system. But I say that it is far better than the mess we now have. This conclusion comes from ten years as a teacher, plus a third of a decade at the other end (notice I didn't say top end) as a public school Trustee, plus ten years of success (in computing) based on being highly responsive to a rapidly-changing client base and consumer needs.

I did volunteer to teach in a nearby high school district—for $1 per day—when its teacher union threatened to strike. But, the strike was averted when Trustees allowed the unionized majority to force non-union teachers to pay fees to the union to keep their jobs—settling the "educational" issue that prompted the teachers' strike threat.

A Striking LA Teacher Speaks

Thanks for your 5/29/89 editorial in *MicroTimes*. It's reassuring to have concern for education showing up in unlikely places. I share many of your views. The policy of giving megabucks to public education (especially after passage of Prop. 98) should be called into question.

As welcome as I felt your message was, I believe your focus was too narrow. I'm one of the bogeymen, you see. Along with about 21,000 of my colleagues, I recently went on strike against the Los Angeles Unified School District.

Any doubts I had about the strike's justification were put to rest on the first day. I went to a rally and met up with teachers who, like myself, had put in many unpaid hours over the years working on special programs for the students.

The most dedicated, innovative teachers were not crossing picket lines. Who went to work during the strike? The "factory worker" types you mentioned in your piece—teachers known for an assembly-line approach to learning, dispatching worksheets and dittos in a mechanical way. Who else went to work? The quasi-administrators (coordinators, administrative assistants, "specialists") who are carried on the employment rolls as teachers but who never teach. Class sizes could be immediately reduced if these monitors and paperwork generators would drag their pompous behinds into classrooms and teach kids.

Much of what you said about teacher unions is true. Frustration and resentment among LA teachers had built up for so long, however, that there was no other way to say "no" to a distant, highly paid, self-serving administrative behemoth but to strike. That's why a large percentage of non-union teachers walked out as well.

State funding made available after the passage of Prop. 98 was used to settle the L.A. teachers' strike. Ironically, I voted against it last November. The accountability sections, as I read them, didn't provide for enforcement against an ineffective school district. Even if they did, the many ways a district can make itself look good when state auditors or peer reviewers come around would render enforcement measures meaningless.

I wholeheartedly endorse a plan to provide California parents with vouchers good for tuition at the private or public school of their choice. There's not a lot of support for this right now, but it's still a worthwhile idea—hopefully a realizable fantasy.

I'm leaving LAUSD at the end of June to take care of my own three kids and finish a Masters while my wife goes back to work. When next I seek a teaching position, I'm going to check out the private and parochial schools first. Teachers make less money there, it's true, but the commitment to excellence seems to be much stronger.

Ralph Goldstein
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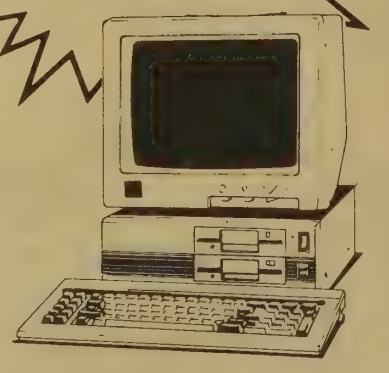

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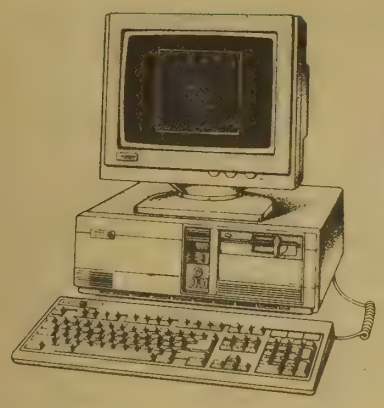

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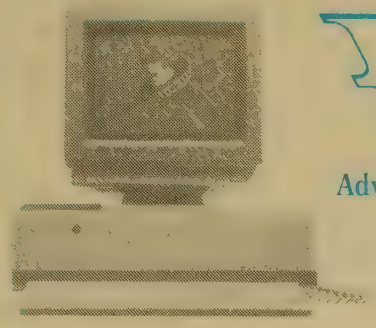

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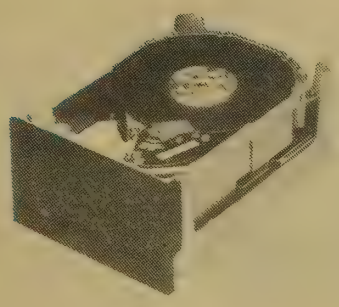

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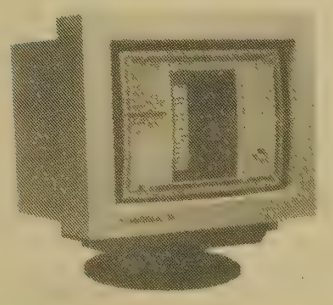

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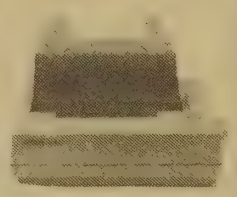

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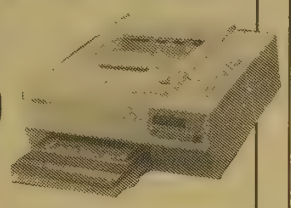

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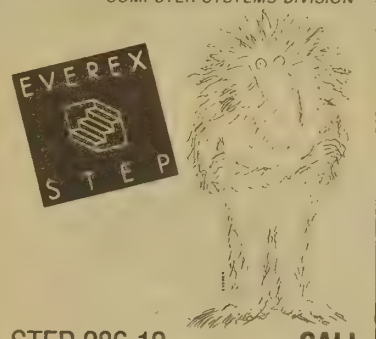

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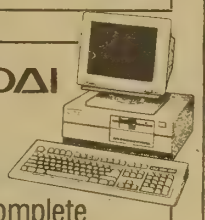

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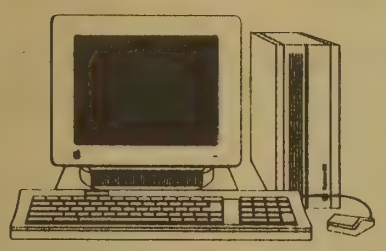

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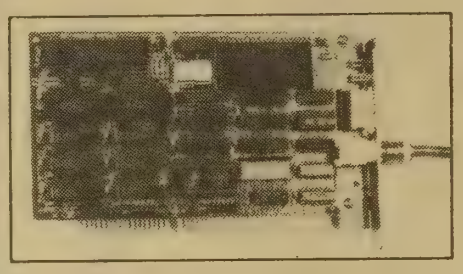

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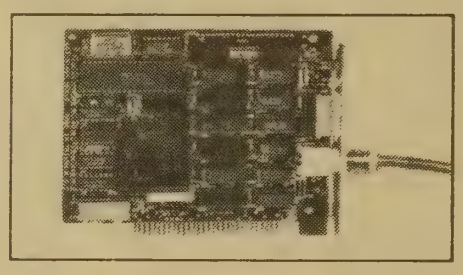

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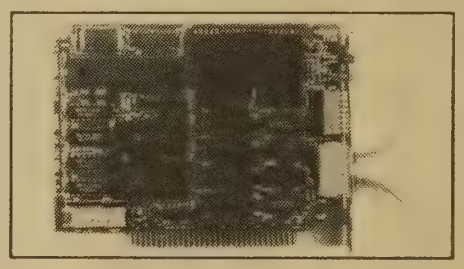

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August 21–25 SCO Forum89. Santa Cruz. University of California, Santa Cruz. Call: (408)425-7222.

August 24 Marketing SIG Meeting. Palo Alto. Software Entrepreneurs' Forum. Call: Don Morrison, (408)425-7222.

August 26 Computer Marketplace Show. Pomona. RK Productions. Call: (408)978-7927.

August 27 Computer Show & Sale. San Bernardino. East-West Computer Shows. Call: (415)388-8893.

September 9 Computer Marketplace Show. Long Beach. RK Productions. Call: (408)978-7927.

September 21–22 Second Annual Microprocessor Forum 1989. San Jose. Microprocessor Report. Call: (415)494-2677.

September 22 Workshop on CD-ROM, Scanners, Faxs, LANs, and HyperText. Los Angeles. Los Angeles Chapter of ASIS. Call: Judy Roswell, (213)812-5365.

September 26–28 Distributed Systems Conference. Santa Clara. Dataquest Incorporated. Call: (408)437-8245.

September 30 Computer Marketplace Show. Long Beach. RK Productions. Call: (408)978-7927.

October 7 Computer Marketplace Show. Pomona. RK Productions. Call: (408)978-7927.

October 27–28 1989 Fall Cue Conference. Santa Clara. Computer Using Educators. Call: (818) 355-8807.

November 16-17 The Thirteenth Western Educational Computing Conference. Burlingame. California Educational Computing Consortium. Contact: Dr. Oliver Seely Jr., CSU Dominguez Hill, Chemistry, 1000 E. Victoria St., Carson, CA 90747.

November 28–30 Engineering Workstations Conference. Los Angeles. National Institute For Management Research. Call: (213)450–0500.

December 13-16 Project Management: Planning, Scheduling, Tracking & Controlling Course. Los Angeles. Integrated Computer Systems. Call: 1-800-421-8166.

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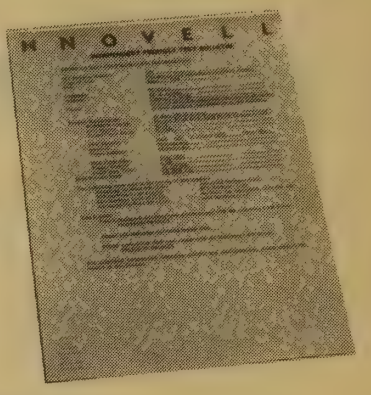

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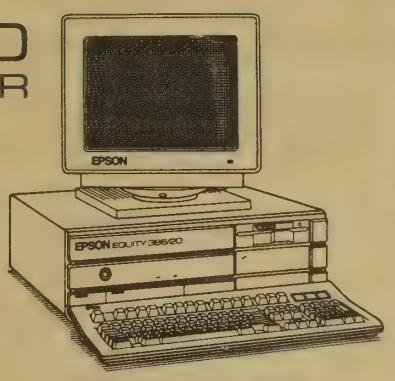

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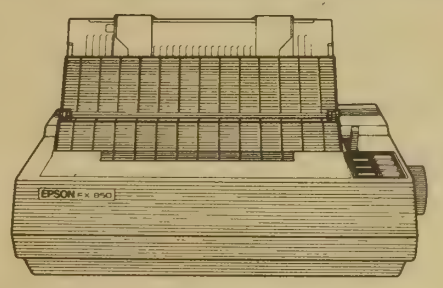

- Narrow-carriage 9-pin, dot-matrix printer.
- SmartPark, a unique Epson paper-handling innovation, lets you switch from fanfold to single sheets or envelopes without removing hardware or paper.
- With a standard push feed tractor and single sheet friction feed, the FX-850 can handle virtually any type of paper as well as envelopes.
- Exclusive SelecType front control panel puts popular printer features and SmartPark operations at your fingertips.
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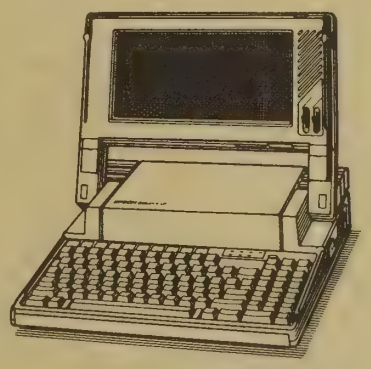

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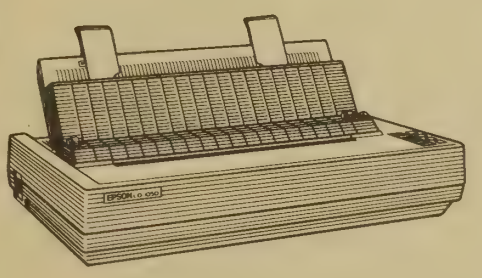

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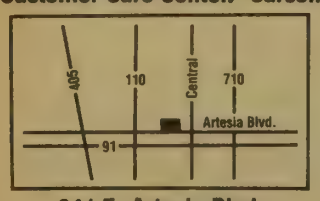

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NEWS AND ANALYSIS

BY PAUL HOFFMAN

IN THE NEWS . . .

IBM Releases First 486 Upgrade 24
AST follows with their own announcement —but is there a market?

Apple Unloads Adobe Stock 28
Apple sells its 16.4% share in Adobe Systems, and announces plans for development of its own PostScript clone.

US Consortium Wants To Produce Own DRAM ...30
US Memories needs $500 million in six months and an exemption from US antitrust laws to begin domestic manufacture of 4 Mb DRAM chips.

Not Alan Kay's Dynabook 32
Dynabook Technologies releases six portable MS-DOS machines using the name Alan Kay popularized—but never trademarked.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

The 80486 Race Is On, But Is It Worth Running?

The Intel 80486 has made its first commercial appearance in a market where fewer than 15% of PC users have advanced systems based on the 80386.

The new 80486 CPU, announced only a few months ago, offers few new programming features over the current members of the 8086 family. What it does offer, however, is supposedly very fast execution of programs. However, people who have run benchmarks on the few systems that actually have running 80486 CPUs have reported that processor-bound programs only run about 20-40% faster than they do on 33 MHz 80386 systems. Given that IBM's price for an upgrade is nearly $4,000, it is likely that few will want the processor until the price drops significantly.

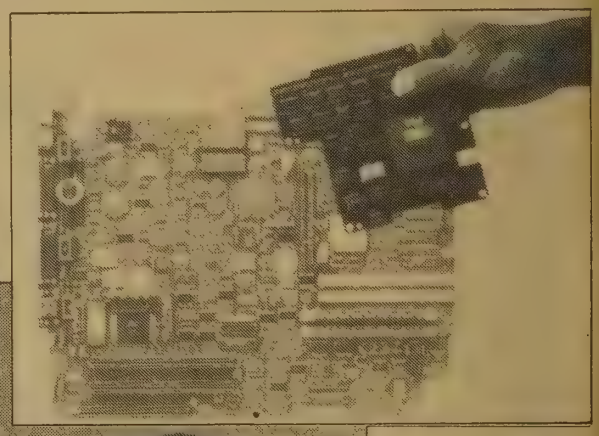
IBM made the first announcement of an 80486-based system with its "PowerPlatform 486/25" upgrade to the PS/2 model 70-A21. The upgrade (basically a swap of the board holding the CPU and ROM chips) is supposed to provide "up to 80 percent" higher performance in business applications and up to three times the performance in numeric-intensive applications, according to IBM. However, no one has shown either of those to be true except in the cases of very small, specialized benchmark programs. According to many people who were allowed to use the upgraded IBM system, none of the programs tested ran faster than 150% of the speed on a 33 MHz 80386.

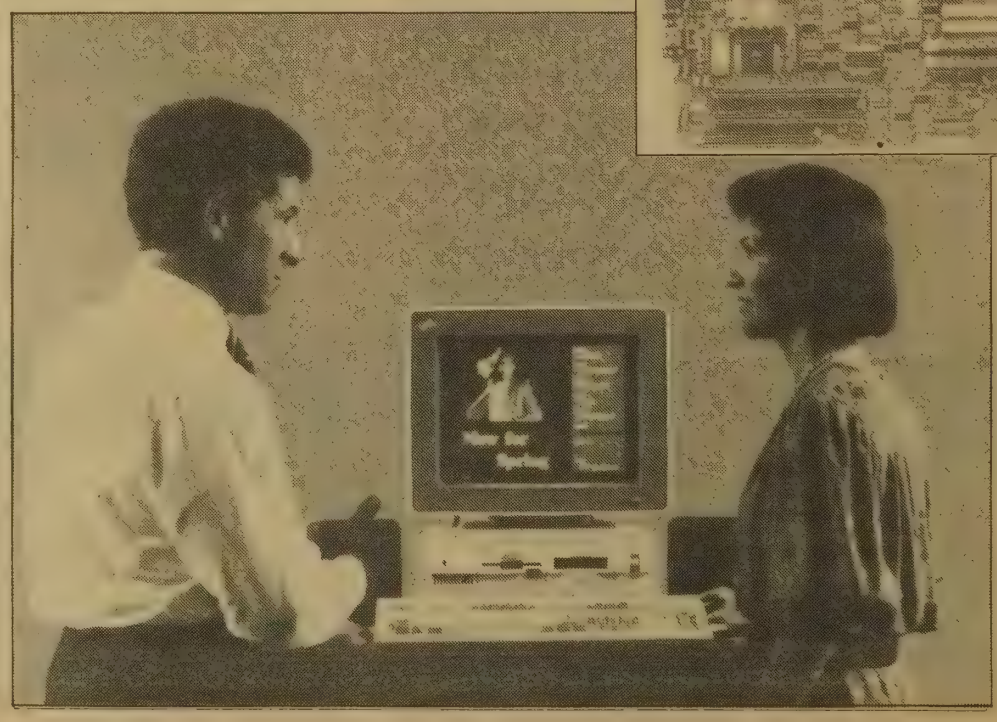
The upgrade will cost $4,000 (with the return of the 80386 CPU) and is supposed to be available late this year, assuming that Intel begins volume shipment of the chip as expected.

Almost immediately after IBM's announcement, AST announced that they too will offer an 80486 upgrade to their 80386-based systems. The AST upgrade, called the Fastboard 486/25, has an additional 64 K of fast cache RAM on the board to further increase the speed. The upgrade for the AST systems costs $3,000. ALR noted that its upgrade would only work in AST systems, since it involves swapping out the CPU board.

AST and IBM are the only major companies who put their 80386 CPUs on boards in anticipation of the 80486. Most other companies put their CPUs directly on the motherboard, essentially preventing a direct upgrade. Many companies are expected to sell 80486 motherboards by the end of this year so that users who are willing to swap the entire motherboard can get the 80486 without buying a new system.

Compaq, IBM's largest rival in this country, said that it would have a new line of computers using the 80486 CPU by the end of the year, possibly before IBM begins shipping its upgrades. Many Taiwanese clone manufacturers also said that they would have high-





IBM announced its first 486-based machines, amid speculation as to the extent of the benefits provided by the new chip.

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Clock/Calendar
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VGA monitor
40 MB Hard disk (28ms)
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1.2 MB, 5.25" Dr.
1.44 MB, 3.5" Dr.
2 Serial/1 Para./1 Game
Clock/Calendar
1 MB Ram memory
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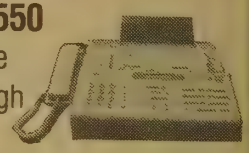

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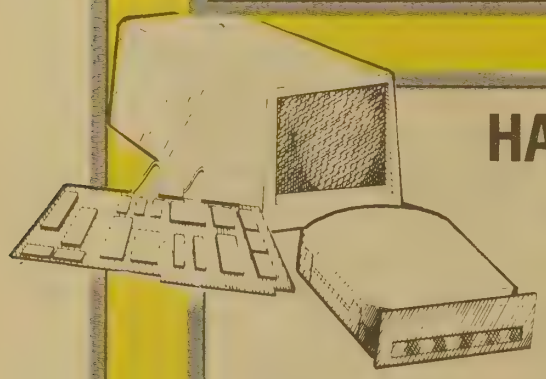

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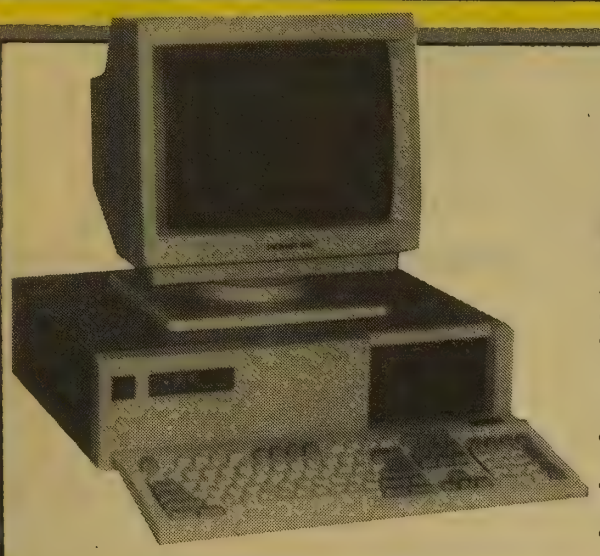

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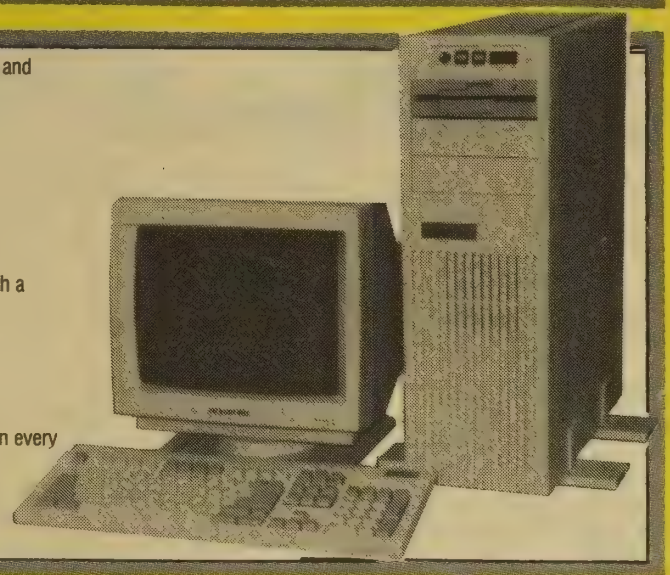

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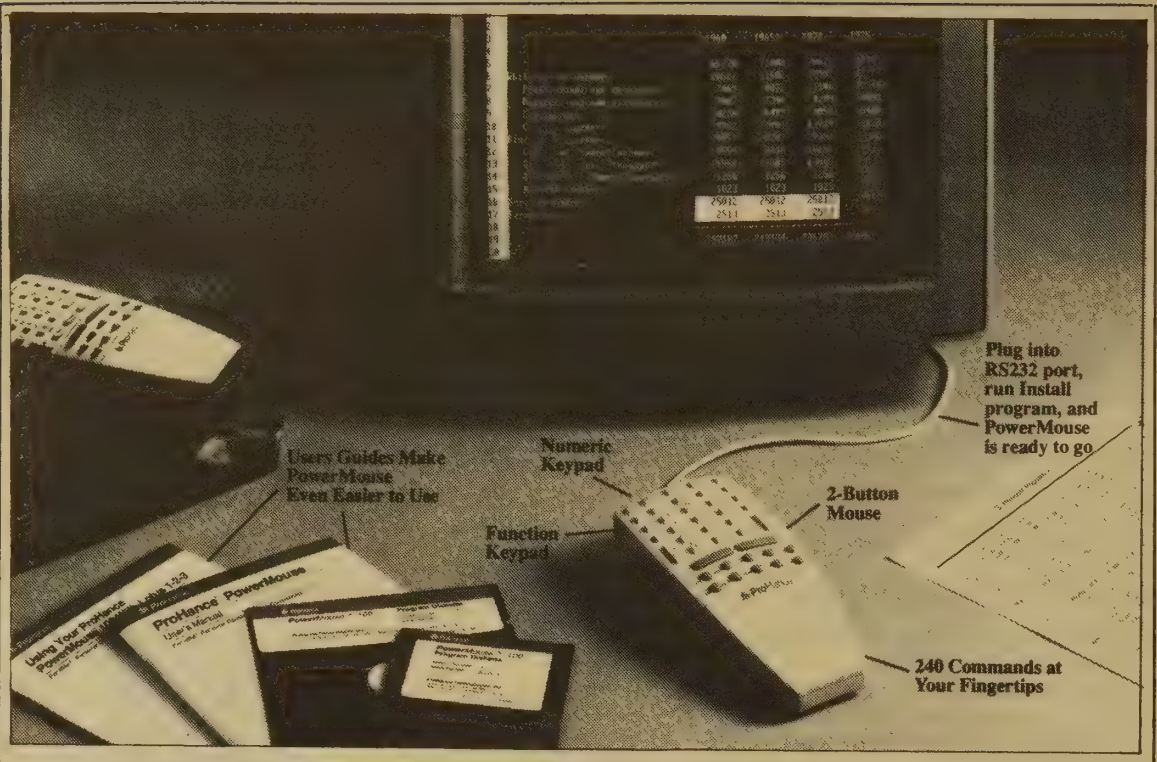
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NEWS AND ANALYSIS

end systems by January or February 1990.

IBM's faster numbers come from the fact that small loops can run from the 80486's on-chip cache, which holds 8 K of data and instructions. However, most real-world applications involve much more code than this, even for tasks such as updating the screen. Thus, the speed increases announced are only available to programs that have been specifically written to keep loops small.

Unfortunately, few commercial applications are optimized this way, and thus the 80486 will be of most use to companies that write their own programs. When the 80386 was announced a few years ago, it was clear that its acceptance was not only based on speed. Intel designed many significant new features for programmers into the 80386. The 80486, on the other hand, has almost no new features relative to the 80386, although it does integrate the math coprocessor into the CPU so that fast math support is not an expensive add-on.

According to the *Microprocessor Report*, the industry newsletter for CPUs, "Intel made no significant changes to the 386 architecture except for six new instructions required for cache support and mulitprocessing functions." Without these new features to bring in a large wave of interest from system-level software designers, the 80486 will have a tough time until the price of an upgrade drops to less than half of what it is now.

Apple Unloads Adobe Stock

When a stock increases its value by 3,500%, most investors would sell. Apple recently announced that it is selling its 16.4% share in Adobe Systems to take the significant profit.

At the same time it announced that, although it would continue its current relationship with Adobe, it is developing its own PostScript clone, thereby depriving Adobe of future royalties. Although Apple commended Adobe for some of the popularity of the Macintosh, it signalled that the relationship has begun to come to a close and that it did not trust Adobe to move PostScript forward in a reasonable fashion for the next few years.

The move was prompted by much more than profit-taking. When Apple announced a few months ago that the next version of the Macintosh system software would include a new printer technology that could clearly (and easily) replace PostScript, it became clear that Adobe's days in the Macintosh world were numbered, although Apple would continue to support PostScript on the printers that it had sold. The new system will incorporate technology that will make the transfer of images from the screen to the printed page much more direct and predictable.

Although Adobe offers that technology in its Display PostScript product, changing all Macintosh software to use Display PostScript would be prohibitive. Instead, Apple is designing the new system so that current programs will work with it.

The most devastating part of the announcement for Adobe was that Apple is developing its own

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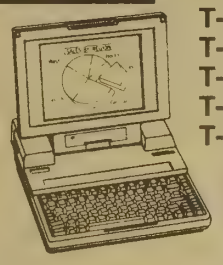

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NEWS AND ANALYSIS

PostScript clone. Although Apple only accounts for about 30% of Adobe's revenue, this was the first announcement from a major manufacturer that clones could be considered as good or better than Adobe's PostScript. There are many PostScript clones available now on the market, and Apple is likely to license one of them or buy out one of the companies that designed them.

Apple's stated goal for developing its own PostScript is "to have the flexibility to determine what additional features and enhancements should be provided in its PostScript language interpreter." This means that once Apple releases its own PostScript, Adobe's standard might be significantly less of a standard than it wants. Apple's extensions might simply take better advantage of the hardware, but they may also include new functions that would allow PostScript to be used in strategic areas to Apple's sole advantage.

Apple promised that it would support the current version of PostScript for its customers, but it is unlikely that it will enhance Adobe's PostScript with any new features.

US Consortium Wants To Produce Own DRAM

Flag-waving isn't only the province of the president and Congress. A group of American companies want to reduce their reliance on Japanese chip manufacturers by creating a consortium to manufacture 4 Mb DRAM chips in the U.S. The group gained immediate support from the electronics industry and even got qualified support from the U.S. companies who currently manufacture DRAMs.

However, it is unclear whether the company can get together the massive funding needed for the venture and whether it would be worth the cost. The self-appointed director of the company, Sanford Kane, has about six months to put together a believable business plan and raise approximately $500 million. The company has the initial verbal and minor financial support of Advanced MicroDevices, DEC, Hewlett-Packard, IBM, Intel, LSI Logic, and National Semiconductor.

Even though it is clearly a violation of the US antitrust statutes, it is likely that an exception can be made by Congress if the issue is deemed important enough.

Even though it is clearly a violation of the US antitrust statutes, it is likely that an exception can be made by Congress if the issue is deemed important enough. Given the popularity of Japan-bashing, this should be a minor hurdle. None of the current US DRAM manufacturers has raised any objections, but no business plan has been presented so it is not clear how US Memories (the name of the new venture) plans to price its products. If it becomes clear that the firm wants to gouge prices to gain a foothold in the market, it is likely that Texas Instruments or

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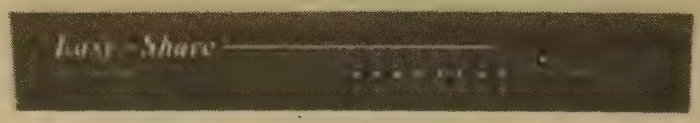

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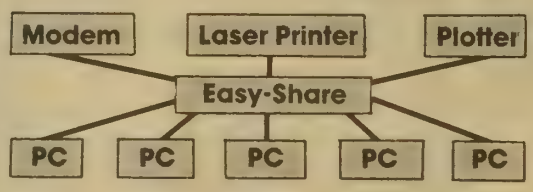

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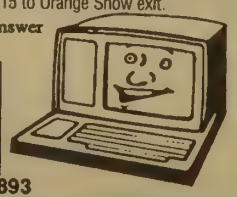

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NEWS AND ANALYSIS

Micron Technologies will cry foul and take the issue to court.

There will be the normal amount of fighting between states about where the plant will be located, even though chip manufacturing uses more toxic solvents and gases than almost any other part of computer manufacturing.

Many questions loom for US Memories:

•Is it safe to rely on IBM for the 4 Mb technology? IBM has always extracted a great cost from its "technology partners" for ideas and processes developed at IBM. An often-forgotten fact is that IBM is the largest producer of DRAM in the world. However, all of its production is for its own use only. IBM has an apparent lead over most of Japan with ramping up 4 Mb production, and it could decide that this would be a good time to start selling to other American companies, especially if it would be perceived as "patriotic" to do so.

•Given that Japan is still considered one of our most important allies, why not just make long-term contracts with Japanese companies for their DRAM production? Clearly, if individual American manufacturers are going to be investing hundreds of millions of dollars in US Memories, that money could also be invested elsewhere. Is the political climate against Japan so bad that some of these manufacturers have not considered simply investing in joint ventures with Japanese companies or simply placing huge advance orders? US Memories would be much more vulnerable to legal and technical chicanery than Japanese sourcesof DRAM.

•What will US Memories do after the 4 Mb DRAM? Even though there have been no objections from other chip manufacturers to the consortium, what happens if it decides to move into other markets in which there are already American suppliers? It is unlikely that the initial business plan will lock the consortium out of future markets, and many American chip manufacturers will have a new giant to worry about five years down the line.

Not Alan Kay's Dynabook

Dynabook Technologies released six portable MS-DOS machines using the name that Alan Kay popularized for his vision of a notebook-sized, low-cost computer that anyone could use.

In the company's defense, president Vinod Khosla said that the name Dynabook was not registered or trademarked so that it was fair game. Given that the name was part of a dream, not a commercial product, the lack of trademark is not surprising. The computers introduced, however, only resemble Kay's often-shared dream in size. Instead of mouse or voice input, the systems have a standard keyboard (without numeric keypad).

Instead of being trivial to use, they are based on MS-DOS. Instead of being inexpensive, a single-floppy system costs $4,700. Given that Dynabook Technologies registered a trademark for the name for the company and its products, no one can use the term for its original purpose without causing confusion, to say nothing of the possibility of incurring the company's legal wrath. ■

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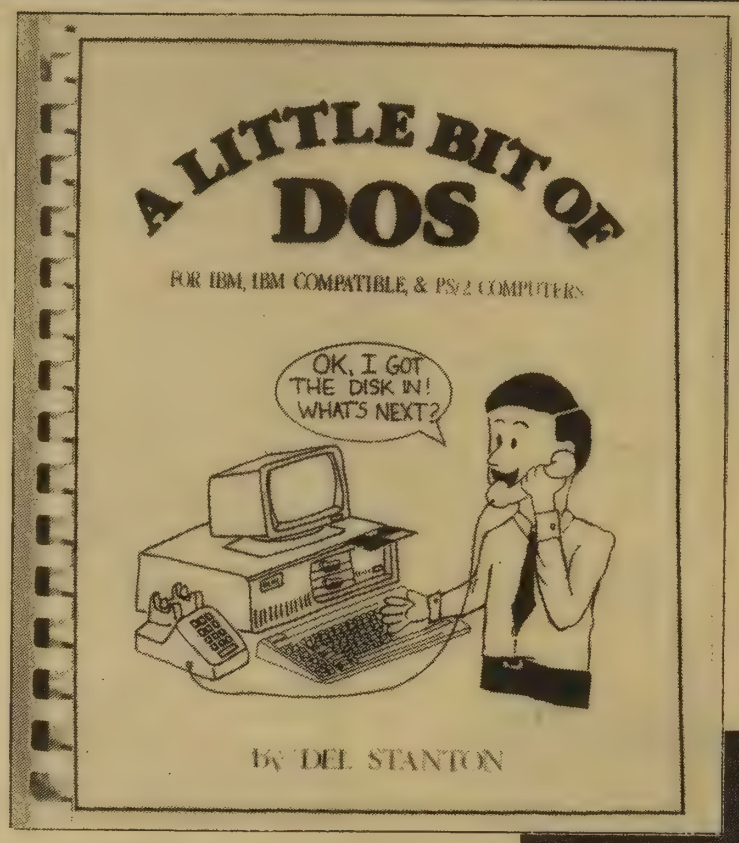
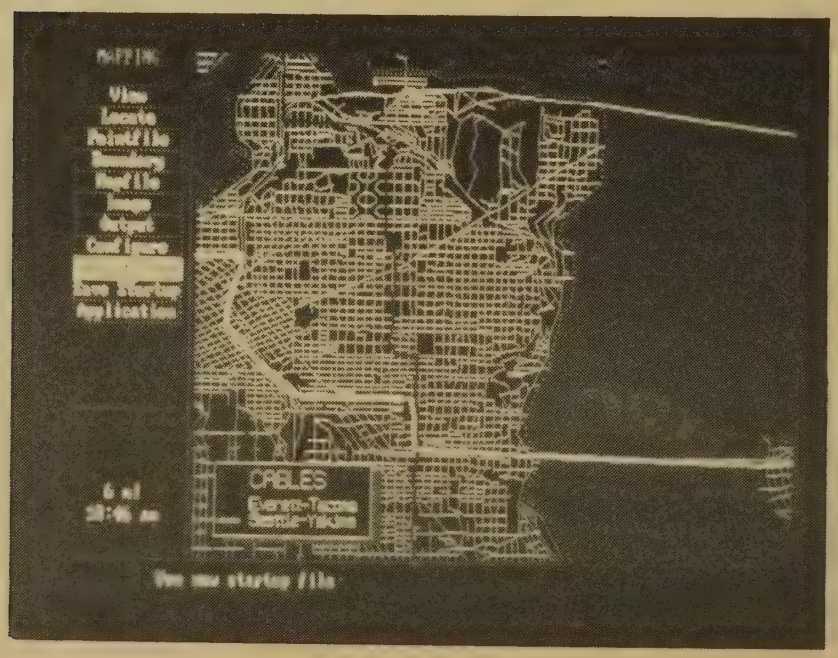


A Little Bit Of DOS is a new text for beginning DOS users. The book is designed for those who want to learn enough about the standard PC operating system to be able to use it at a basic level rather than master it completely. It is illustrated throughout with cartoons that explain essential DOS concepts. If you think booting your PC means giving it a swift kick, and you don't know the difference between a batch file and the A: drive, *A Little Bit Of DOS* can help you get started in the DOS world. Del Stanton, PO 1120, Burbank, CA 91507. (818)840-0767.

GoScript 2.1 Offers New Features

GoScript 2.1, a software printing utility for the PC and PS/2 that enables non-PostScript printers to print PostScript language files, offers three new features: print-to-disk capabilities, faster bit-map image processing, and the ability to save and restore bit-map images. *GoScript* 2.1 also supports GoFonts, LaserGo's new library that will offer over 2000 typefaces. *GoScript* is offered in two editions—the first includes 13 high quality scalable outline fonts; the second edition is *GoScript Plus*, which includes 35 outline fonts. Both come with step-by-step instructions for use with many popular programs including *Word*, *WordPerfect* 5.0, *PageMaker*, and *Ventura Publisher*. 640 K of RAM, a hard disk with 1.5 to 3 Mb of free memory, and MS-DOS 3.0 or later are required. ($195/$395) LaserGo, Inc., 9235 Trade Place, Suite A, San Diego, CA 92126. (619)530-2400.

MapInfo 4.0 Weds Maps With Databases



MapInfo combines the power of computerized mapping with the information sorting and analysis capabilities of a database. The program can use data either in a user's existing databases (*dBASE III Plus*, *dBASE IV*) or in any ASCII file. Through *MapInfo*, users can easily manipulate locations identified either by street address, zip code, city, state, county, census tract or, by virtually any geographic information. *MapInfo* also supplies computer maps for thousands of cities across the US. These maps include names for every street, river, and bridge, as well as address number ranges for every block and side of the street. State and national maps are available with county boundaries, cities and towns, zip codes, and state and interstate highways, and a variety of national boundary files. World maps are also available. In addition, users can create their own maps using a keyboard, a mouse, or a digitizer. *MapInfo* allows you to

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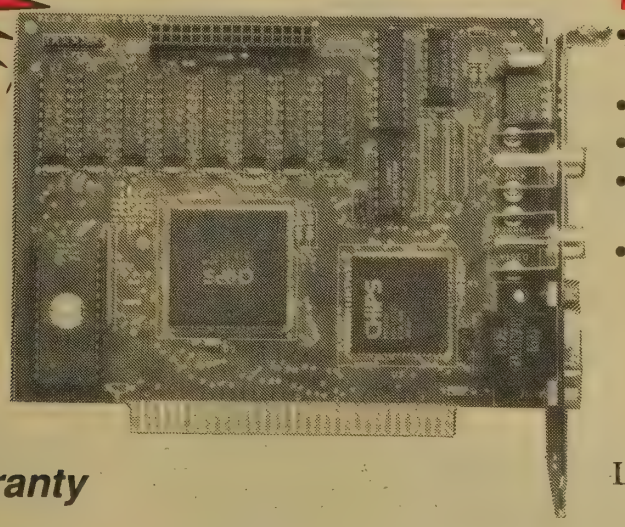

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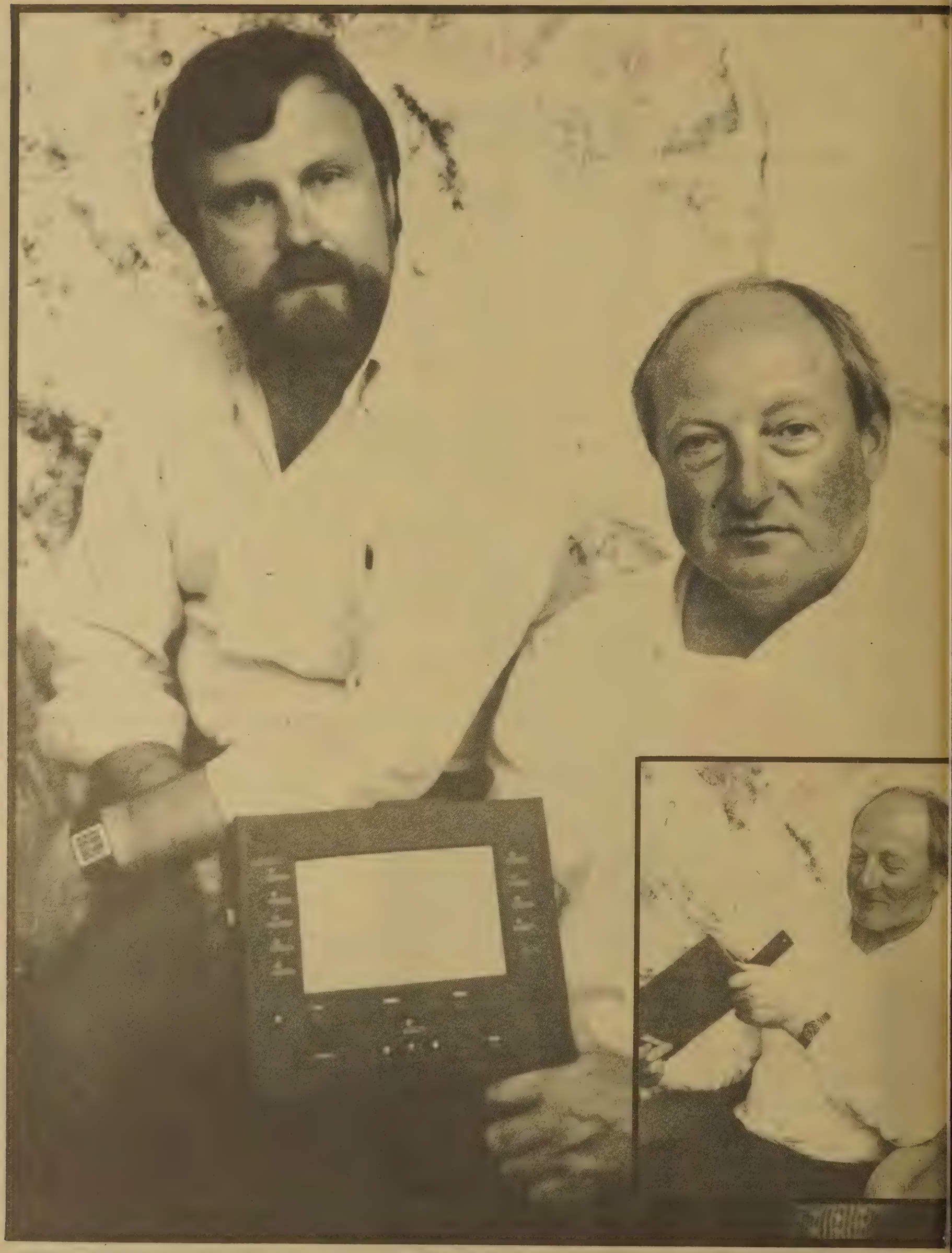

The Handheld Workstation: New Frontiers In Mobile Computing

By Mary Eisenhart

By now everybody's heard, and many have experienced, the benefits of mobile computing with laptop machines and collaborative projects utilizing Local Area Networks.

However, if you belong to the estimated half of the population whose work doesn't take place in the desk-bound world, most of these benefits have been lost on you. Sometimes you have to work in conditions that would dramatically shorten the life of any computer equipment you brought along—temperature extremes, high dust levels, static flying hither and yon. Other times the sheer complexity of setting up a network terrorizes you even as you recognize the eventual benefits.

Enter the Agilis System, due to start shipping in August. The Agilis System consists of a variety of interchangeable modules or "slices," each slightly larger than a videocassette, which snap together to provide exactly the configuration customers need for specialized applications, from manufacturing to disaster relief. Slices include an 8088 CPU, an 80386 CPU, a touchscreen with an interface called ActionPoint that emulates Microsoft mouse operation, battery

Ken Biba (l) and John Ellenby of Agilis, with a 386-based handheld workstation and touchscreen-like "slice" which incorporates touchscreen mouse emulation using the ActionPoint interface. Above, Ellenby shows more modularity: a 20-meg hard disk in a cartridge. The complete configuration weighs about five pounds.

Photos: Michael Jay

packs, and numerous other expansion options.

Aside from their modular design, Agilis products are notable for their unique approach to networking: they support standard networking protocols from Ethernet to AppleTalk, run standard DOS (in the case of the 8088), OS/2 and UNIX (in the case of the 386, which also runs DOS) applications, and do it all via radio, without wires or cables. They also do it *fast,* supporting Ethernet speeds of 10 Mb per second, unheard-of on previous packet radio systems.

The Agilis System is the brainchild of the company's two founders, chief operating officer Ken Biba and chairman, CEO, and president John Ellenby, whose interests converged in the creation of wireless LANs and workstations for what are called "demanding environments." Biba was a co-founder of networking pioneer Sytek (recently acquired by Hughes); Ellenby, a Xerox PARC veteran, is the founder of GRiD Systems, which invented mobile computing and created powerful, rugged laptops that became the darling of the military and the Fortune 500. Both shared an interest in making the benefits of LANs and mobile computing available to those markets whose particular needs hadn't been met by the more mainstream products.

If the main thing you want from portable computing is the ability to move your spreadsheets from home to office, Agilis slices, at prices ranging from $2,000 to $20,000, may be more than you need. However, if you're out in the field in bad weather trying to diagnose and fix a malfunctioning oil well that's costing your company thousands of dollars a minute, Agilis is uniquely suited to your needs. And, with strategic alliances with third parties including 3Com and vertical-market vendors already in place with more to be announced, the range of specialized solutions available to Agilis customers is expanding rapidly.

"I've seen lots of nice products in my time," says Ellenby, beaming paternally at a five-pound 386 setup about the size of a phone book. "Obviously the latest product is the nicest one, but I feel *really* good about this one." Since Ellenby's previous "babies" have included the fabled Xerox Alto and the GRiD Compass, chances are that his fondness for the handheld workstations will become a popular sentiment.

What led you to do this project? What needs are you trying to address?

Ken Biba: We came together from two kinds of different places. John with GRiD, as you know, invented and pioneered mobile computing in general. There are two sets of users: the people who take their office into someone else's office, and the people who don't have an office. The latter have not been well served by the portable computers that have been out.

I came out of the LAN experience discovering that LANs can be invaluable; however, they are still a complex beast, and being able to make them simple and being able to remove some of the complexity by making them wireless was very important.

What I think was natural was that the kind of customers John was looking at, in terms of people who had applications that office machines wouldn't solve, were naturals for having wireless communications.

Ken Biba: "LANs can be invaluable; however, they are still a complex beast, and being able to make them simple and being able to remove some of the complexity by making them wireless was very important."

So we can provide the same kind of tools people have in the office, outside the office; it was natural for us, I think, to join forces, combine our two perspectives, and to build a much more powerful tool together than either of us would have built alone.

One of our premises is the principle of least invention. This is very different from a laptop-looking system, and yet it's very compatible on the inside. So in some sense, you can think about this as a wireless Sun workstation—it's got an Ethernet, it's got graphics display, it's got about a 4-5 MIPS processor inside it, yet it has interfaces to software that want to be the same interface that one would expect to see in one's office.

We've tried to minimize the learning curve so that you don't have to learn something new while providing a new service.

In the particular case of networking, we wanted to build a network product that was not as difficult, not as intimidating, as networking products had been in the past, yet provides the same class of service that our customers need. This connects as a networking unit, it self-configures; when you install the radios it self-configures, and the networking software doesn't have to know about radios. We've kind of hidden that away in the way we've built the product, without having to go off and reinvent yet another operating system, another user interface.

John Ellenby: Modularity has been clearly understood as desirable for a long time in computers, because that's exactly what we've had in mainframes and desktops—you add to it when you need them.

But in portables we came out with things that were all combined, the display with a keyboard—all the choices were already made. And users wanted different kinds of displays, different kinds of keyboards, different amounts of storage, or different or unusual peripherals.

Anybody who didn't want the standard Model T configuration was out of luck.

Biba: And the Model T configuration was largely oriented to people who enter large volumes of numbers or text, and not oriented toward other kinds of applications—not oriented toward CAD applications, not oriented toward analysis applications. It did not make good tools—good tools for certain sets of people.

So you designed the system?

Ellenby: We brought together a team, many of whom had worked together before, and we shared all our ideas and got some customers in, sat around and pushed around some polystyrene blocks, and shared some ideas, got some more ideas, and 18 months ago sat down and designed it. This is the result of 18 months' work.

There are still certain pieces of the marketplace—with respect to all the opportunities in wireless networking and all the opportunities in mobile computing and all the opportunities in networking generally—that require an architecture, a particular physical packaging, that enables people to do what they need to do. We have one customer, for example, who's interested in stacking together ten 386 CPUs. He's going to take the software off of ten 386 Road Runner workstations, which occupy a room somewhat larger than this office, package it into a package this big [indicating size about that of a Mac Plus]—that's ten of these [the 386 CPU slice].

So you can really build any kind of computing system that you want. There's going to be other people building slices for us and with us and selling them directly to their customers and to our customers; those slices will include not just radios, but radio interfaces for other people's cellular radios. They'll include such things as instrumentation, interfaces, mass storage devices, sensors, and so on.

So this is a system that can be added to, a system that can grow, a system that can be used by a major user to meet their changing needs. When they need to insert technology, they can do that. When they need a new kind of display, they've got that.

It lowers their ownership costs, because they only change the pieces that they need, and it very much simplifies their operations, because they don't have to go through a major revolution every three years to buy whole new systems. They buy the pieces that they need, so their lifecycle costs are much lower.

It enables people to build simply, for themselves, custom computers that uniquely suit their needs, their operations, and to build them out of standard components that are available at reasonable cost, but moreover leverage the standards that the industry's developed, principally for the office, so there's lots of software that exists, lots of hardware that exists, the infrastructure's there.

The value-added that we brought is in the notion of networking that this embodies—the wireless network itself, the fact that we use 802.3 or Cheapernet connector modules that can be made up very, very flexibly—part of the system can be at the front of the vehicle, for example, and part in the back, and just have a coaxial cable go between them. And the fact that we have a unique packaging notion, that other people can use.

Biba: Also the intimidation factor: "Who do I talk to to get the wire pulled? How do I get it installed?" Just the intimidation factor of that complexity. You'll notice that in contrast to conventional LANs, it doesn't require any cables to assemble the computer.

If you're familiar with how Ethernet was originally invented, it began as a project in Hawaii called Alohanet, which was essentially to provide peer communications between the Hawaiian islands. They had great difficulty moving wire between islands, so radio was the net system used.

Xerox essentially went ahead and invented Ethernet, took that same notion of wireless communications and put it on a wire, a very strange antenna, rather than just doing radios. So the history of Ethernet and local area networking really begins

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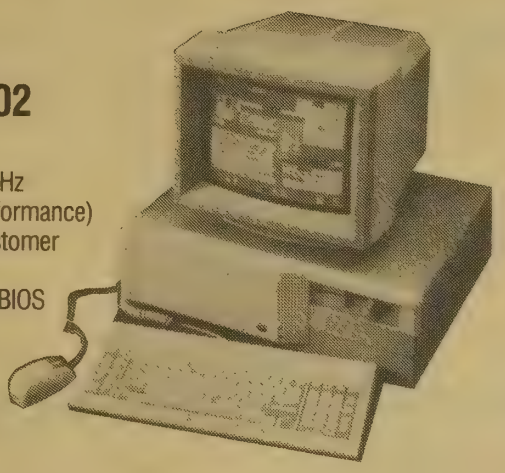

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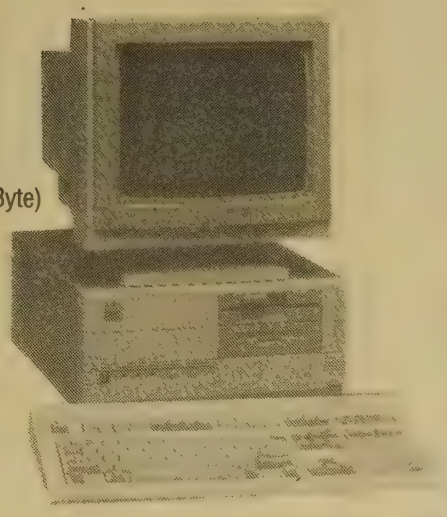

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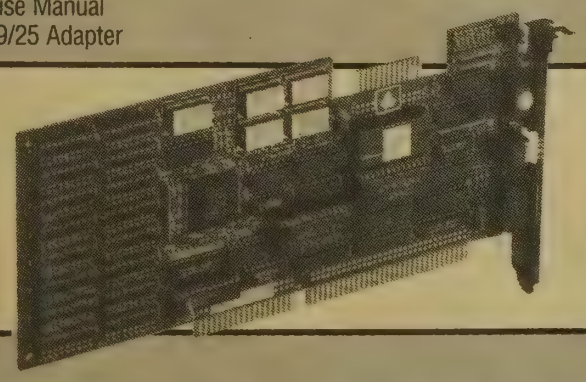

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with radio, goes to cable, and now in a sense we're taking it back to its roots and moving it back into radio.

Are most of the applications that this technology is used for fairly vertical?

Ellenby: I would say they're very vertical—you could say that they're horizontal if you were to say that there's a thing called maintenance systems, which if you think about it is an application.

Desktop publishing is an application. Desktop publishing started out as being very vertical, for the people in the office that made the publications that needed to get out rapidly—that was a specialist group. And then it started that everybody wanted to take their memos and make them into productions.(laughs)

Once the tool becomes available, people start thinking of all kinds of things to do with it.

Right.

I think there's a marketplace that is currently thought of as vertical, which is equipment maintenance. Or there's a marketplace people think of as vertical, which is command and control. In fact, they're horizontal marketplaces of quite large dimensions.

You take the utilities, you take the big van companies, you take all the trucking lines—that's a command and control application. It's not command and control like on the battlefield, in the sense of the Department of Defense, but you want to know where the people are, and you want to be able to have them tell you what they're doing and what they see—what a fireman's seeing, or what we're seeing about maintaining something, and you want to coordinate what they're doing.

Utility companies are interested in where their trucks are, giving the people in the trucks the best information they have about where dangerous chemicals are on the site, or where you go to turn off the gas pipe in a school. Things like that. Command and control is actually a big application—taxis, ambulances, fire trucks, they're all command and control applications.

Then of course, within DOD, command and control is lots of people needing to be coordinated about what to do, where to go, and who they're going to be dealing with, and providing similar information back.

These turn out to be fairly large, generic applications—you think of payroll as being a vertical market, but that turns out to be something everybody uses.

This could be useful to an outbound tech support team.

Sure. They need to be told where to go and what to do, and they need to feed back what they're seeing and what they've done. When you think about it in those terms, in systems terms, it starts to be a very large, generic marketplace. To the extent that they use similar systems, that's what makes it into a large generic market.

There's the engineering marketplace, which is fixing equipment in the field, programming the robots, verifying that the little computers that run the elevator systems, the heating-ventilating systems, are all correct. Fixing aircraft, all those things which are thought of as engineering applications—that's a very big marketplace indeed.

And the third marketplace, or cluster if you like, is industrial automation, which is rather similar to the second one, but different in a sense, and that is the ability to embed small computers, either semipermanently or short-term, or even permanently, that communicate among themselves and the other systems about the status of the plant. It's the ability to very quickly add automation tools, verification tools, the ability to change a production line very quickly, so you get flexibility.

John Ellenby: "The nice thing is that we can use lots of the existing systems. We take things that you can use in the office, and we use them outside and make them useful to people in these demanding environments."

That includes, of course, doing the loading verification and other things that have to do with the logic controllers, PLCs, programmable logic controllers, that people have on production lines and elsewhere. A PLC, for example, if it's shut down in an automotive engine manufacturing line, costs $5,000 a minute. So they're very interested in getting in there quickly and getting it back up.

In these marketplaces there's very high value to the customer, to the public, to have command and control of the utility truck done properly—it doesn't sound as though it's a high value, but when you start to think of what's at stake, a whole community's lost their power, bringing that power back online is important. Preventing explosion is important, and dealing with, occasionally, quite hazardous materials—transformers have PCBs in them and other things.

You can give many examples where good dispatch information is important, good information about what you're going to see when you get there, not having to rely on the local knowledge of the truck driver and the crew. After a major hurricane on Long Island, I personally saw crews from six different groups other than local—they came in from the entire area, so they couldn't possibly rely on local knowledge. When they had the fires up here in the hills, I knew of crews that had come in from as far away as Alaska, so they all needed to be coordinated to deal with a very major event.

If you take the maintenance of equipment, it's a very big marketplace, in part because the equipment's getting more and more complex. You need the ability to take the documentation into the aircraft, or into the major plant that can't be brought back into the test shop that you're running, can't be brought back into the hangar. Increasingly with aircraft they're trying to maintain them as they go through the hubs, because that's the time they're most accessible to the people with the expertise. They're in the hubs like Dallas and New York and Chicago for very short periods, so they try and coordinate it. It's convenience to us and safety to us, when they do it right.

They can actually connect in, coordinating among themselves—they have maintenance engineers, the people that are loading the aircraft, the people that are fueling the aircraft, the people that are putting bags onto the aircraft and freight between aircraft—the availability of that aircraft and its status is known to a large number of people, as though they were on a local area network. They're connected by radios, in this case.

You've got a command and control application there, you've got a logistics and engineering application, and you've got something that's akin to industrial automation because the aircraft also has embedded controllers. So it's a good example of how these things come together.

And the information can come from a remote database that you're accessing, or some of the information can be on board on the unit itself?

Well, think of the people working around that aircraft, or around that situation, as being on a local area network. Think of an office local area network, where one person might be doing payroll, and another person's doing finance, and somebody else is doing projections on a marketing and sales application. Typically local area networks within companies have been used by workgroups that work together and share information; they don't need to work together but they're sharing resources. They may also use a gateway, that goes to a remote database, or a remote service which is a major big computer.

We're talking about exactly the same kinds of applications in terms of the technology, except that it's wireless, and these people are cordless.

So the workgroup of people that couldn't possibly be connected by cable—it's as though they were. So this job, that hitherto is not very well automated—because people, when they're doing this, would have to get out of the airplane and go to a big desktop PC or go to something that's mounted on a truck or walk some distance or drag around with them a lot of documentation—now they're going to see the documentation inside the aircraft, talk to the maintenance databases, and coordinate the other people. This group works together as a team, as though they were on a local area network.

What are the particular requirements of this sort of applications that you wouldn't necessarily get running Lotus on your desktop?

Ellenby: They're often in demanding environments—rain, dust, cold, heat, chemicals, RFI, EMI (electromagnetic interference), radar, arc-welding. Noisy, noisy, nasty, nasty environments.

On the move ergonomics—you may have it bolted in your vehicle, you may have it in your hand. People are making decisions, fairly critical decisions that need a lot of information support, on the move, often in trucks, often in vehicles, sitting on tugs or on aircraft, helicopters, so the equipment should support that different way of making decisions.

You should be able to use it with one hand if necessary. You should be able to operate it by pointing while you're driving a vehicle—"I want to go THERE."

The nice thing is that we can use lots of the existing systems that there are around. We take things that you can use in the office, and we use them outside and make them useful to people in these demanding environ-

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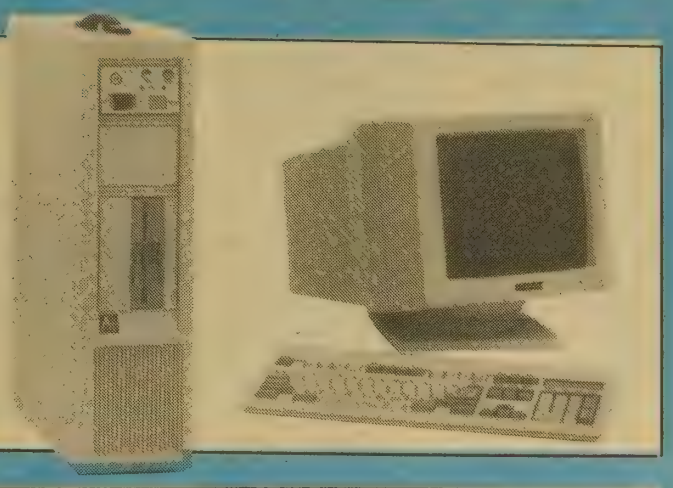

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There's a high value placed on mobility, and there's high value placed on having the unit go to where the problem is, as distinct from standing away in the dispatch center or in the fire house or the hangar, so people can actually take it into the situation.

You need lots of things done right in order to work right—one of the things they need done right is that they need to have connectivity of a mobile workgroup at high data rates, with very good error correction, error-handing, and to be able to do that with a radio. That's what we've done. They need to have a lot of computer power because the interface needs to be simple, and the decisions are often complex that they're trying to make. In short, they need hand-held workstations.

Biba: If you have something that wants to be in an office, say a scanner or a laser printer that doesn't like to be outside or doesn't like to be in a rugged environment, put them on a server in the office, and plug in through the network in the standard way and share that peripheral.

This is designed to take explicitly the resources that someone would need, in a high-analysis environment—the half of the US population that doesn't sit in an office—and give them interoperability with the resources and utilities back in the office. And among themselves.

Could you clarify where this technology fits in the packet radio universe?

Biba: We fall under the generic label of packet radio. The difference, I think, is two things.

One is that we build much faster networks than other people have been able to build with local packet radios. The government has done some experiments that are roughly the same performance, but their machines cost 10 to 20 times what these machines cost, and they made ten prototypes of those.

Most packet radios that have been hooked up commercially are very low speed, more like telephone-line modem speeds, rather than true LAN speeds. There really is a difference in the kind of application you do at very high speed as opposed to low speed. If you use a modem over a telephone line, it takes a long time to transfer a file, but over a local area network it happens very fast. So you begin to do things in a different way, you do different kinds of applications. In particular you begin to do things like graphics, you begin to look at documentation online, this kind of thing. So we believe that we are the first local area network packet radio that is both commercial and fast enough to be usable.

The second thing is that because we take advantage of a relatively recent change in the FCC regulations, these are going to be unlicensed to the end user. So you don't have to go to the FCC and ask for a piece of spectrum, like your local TV station does, or if you buy a CB radio, you have to go and ask them to use it.

Ellenby: In order to get a radio for a taxi, you have to apply and get a license from the FCC. With these radios you don't. They set aside the spectrum on condition that you use spread-spectrum techniques, and that it should be very low power.

Biba: It's a combination of techniques that minimize interference with other radios at the same time. It's really designed to build low-power local area distribution of data at high speed.

To make use of it, you have to use a technology that is is often thought to be exotic, the technology called spread spectrum. It's a technology for taking a radio signal and essentially spreading the energy of the radio signal over a wider frequency by adding redundancy and other things. When you do that, you do a couple of things. You make it more interference-resistant, you make it harder to detect, which means inherently more secure, and in environments like this where you use a LAN radio, it simply means that you don't interfere with each other, you don't interfere with your neighbor next door, or they minimize that amount of interference. And that they are robust against multipath (interference inside buildings).

You need all those things to make it practical. Heretofore that technology has only been used in military communications systems or in satellite communications systems, not really in commercial or industrial-type applications. So this is probably one of the first introductions of that technology, at an attractive price point. When you're looking at military or satellite, you're looking at major dollars.

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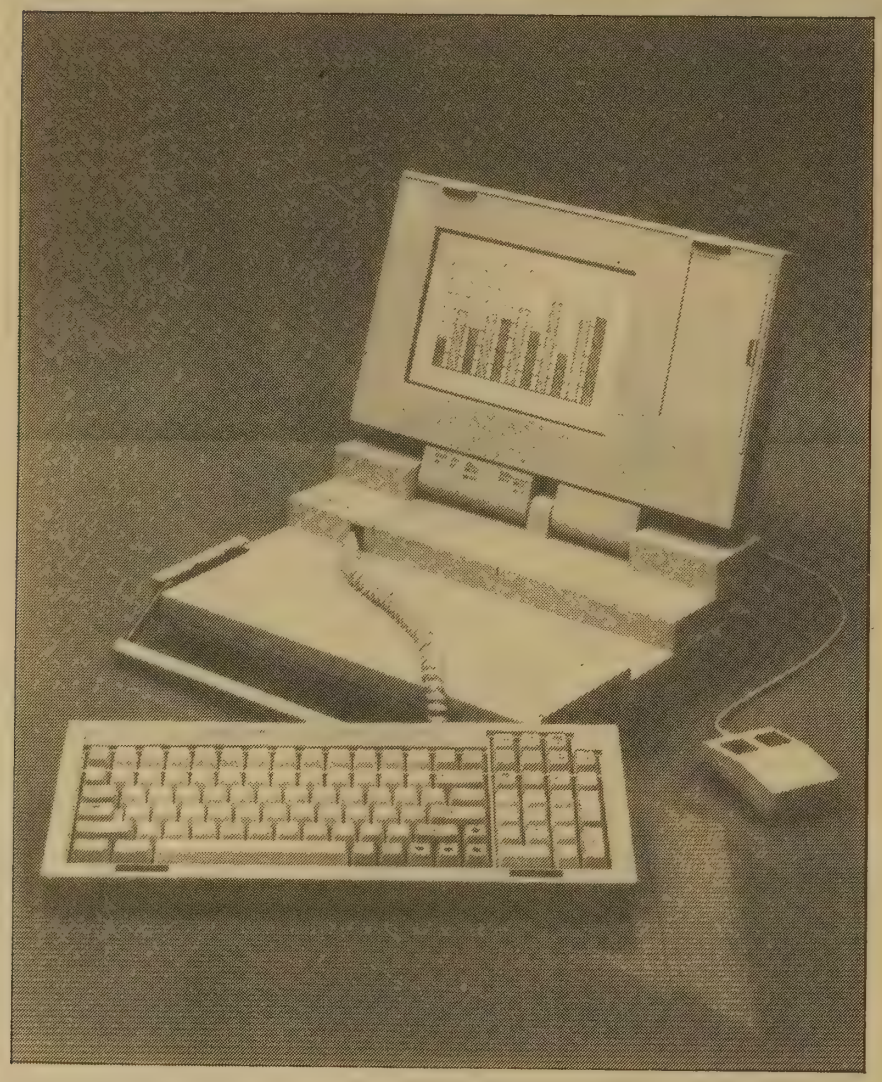

The Altima One is powerful, flexible, and a real bargain at its introductory price of $2,699.

The Altima One Laptop: AT-Class Power To Go

By Ed Kahn

The laptop market is exploding. In 1987 there were about 350,000 laptop units sold, but projections indicate that by 1991 the number could grow to over two million.

With such a growth trend, it's not difficult to understand why a number of new players will try to get into the act by offering competition to NEC, Zenith, and Toshiba, who still dominate this market—often considered a niche within the personal computer field. One such new entry is Altima Systems, Inc., out of Concord. Their first entry, the Altima One, bodes well for their future.

Altima was started by Go Sugiura, who previously headed Amdek Corporation. With a broad background in the computer industry, he obtained sufficient capitalization to begin this new business and coordinate the design of a bold new laptop.

The machine he designed is really targeted to a specific market that values powerful portability more than the ability to work as you wing around the world. What Altima has come up with is a super-powerful computer with more power at a lower price than you could imagine. It has to be the bargain of the year at its introductory price of $2,699—including a carrying case and *Sidekick Plus*. For an extra 50 bucks they will throw in *LapLink III*, the newest and most powerful easy-to-use upgrade of Traveling Software's transfer utility program.

Features

The Altima One is an 80286-based machine running at 16 MHz. This clocks out to 15.9 on the *Norton Utilities* scale. Unlike the portables that are working the other end of the market by staying as small as possible, Altima tried to get as much power and flexibility as they could into a 15-pound machine that you can easily carry to and from your car. The result is a computer that you can use all the time. Although there is no built-in portable power supply, they will have an external battery pack available by the end of summer for $199.

The real emphasis has been placed on not compromising the basic computer. The removable keyboard has all 101 keys and as good a feel as any I've used. Caps Lock, Scroll Lock, and Num Lock are shown by LED indicators. You can work all day on this machine and not look forward with every click of the keyboard to the time when you can get back to your desktop unit. The keyboard has feet so you can adjust the angle for ease of typing. The unit itself also has feet so you can type comfortably if you leave the keyboard on the unit. You also have the option of attaching any AT-style keyboard through the external port they provide.

Another indication that the designers have really tried to give you a superb product: unlike any other laptop vendor I've encountered, Altima includes a Microsoft-compatible two-button mouse. They have designed a small storage compartment to the right of the screen just large enough for the mouse.

The display is also a winner. It measures 10" diagonally and offers a crisp black on paper-white. Although it looks like an EGA display and has a resolution of a full 400 lines, in fact it is CGA with double scanning. The result is unlike any CGA display I have ever seen. There really is no compromise in ease of use for prolonged periods. The screen controls include the usual contrast and brightness dials. There is also a switch that allows you to reverse the video image in order to get a white on black if you prefer.

If you choose to use an external monitor, there is, of course, the appropriate adapter port. You can use either a monochrome, EGA, or CGA monitor. Once again, Altima has thought things through pretty well. I find many portables that I could work with for a long time, but in the end I have to knock them out of consideration because with a color monitor they give you a CGA display, and I can't work with text in CGA. But Altima has designed this so that it will output text to an EGA monitor, even though the graphics will be CGA. If you prefer a monochrome monitor, you can get real underlining and such. The details of disk and modem operations are revealed through LED indicators located just below the screen.

Unlike the portables working the other end of the market by staying as small as possible, Altima tried to get as much power and flexibility as they could into a 15-pound machine that you can easily carry to and from your car. The result is a computer that you can use all the time.

But there's lots more. The basic unit includes a 20 Mb hard disk with a 27 millisecond access time, as well as a double density 3.5" floppy drive. You can buy an external 360 K 5.25" drive for $249.00. This drive is a generic unit that connects through the parallel port. Also included is a 2400 baud Hayes compatible modem.

The Altima's standard configuration includes a megabyte of RAM, expandable to 5 Mb. The expansion is set up so you can either add 1 Mb ($399) or 4 Mb ($949), but nothing in between. The difference is whether you use 256 K or 1 Mb chips. You can either install this memory yourself or have Altima do it.

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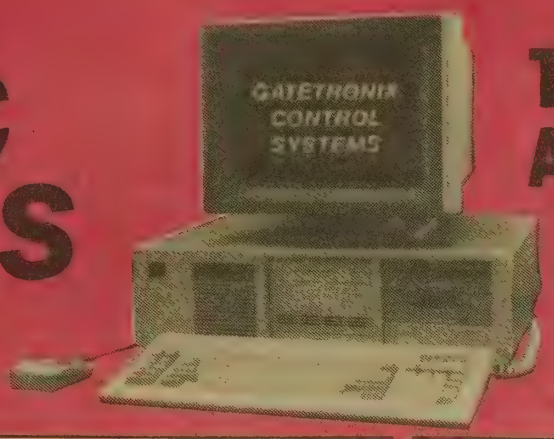

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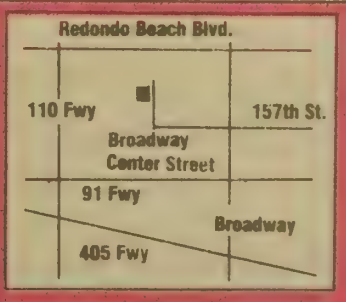

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This extra memory, as well as the megabyte that comes with the unit, is configured as EMS 4.0. This means you can run any of the programs that demand expanded memory. For further flexibility, Altima has designed the computer with a single half-card slot that will accommodate any 8-bit XT card. With graphics, memory, and modem built in, you can further customize your system with this slot.

The overall appearance of the unit is a bit larger—15.7" X 11.8" X 3.9"—than other laptops. I found the system so well designed that the added size seemed worth it. This machine really comes close to a desktop unit.

Altima provides both a serial and parallel port. Next to these ports are also a reset button and a set of dip switches that allow you to configure things like the use of an external monitor and the activation of the serial port. Everything works perfectly.

Altima And DOS 4

The Altima One is the first laptop I have seen that comes with MS-DOS 4.0 or 4.1. It turns out that these two Microsoft versions are the same; here is the story, as I get it. When IBM came out with their PC-DOS 4.0, it was filled with bugs. A few months later, Microsoft released their 4.0, which had no bugs. Soon thereafter, IBM came out with their PC-DOS 4.1, which had the bugs fixed and was equivalent to MS-DOS 4.0. So, to avoid confusion, Microsoft changed their 4.0 to 4.1. So what you get with the Altima is the new DOS, whatever number it has.

I have mixed feelings about the new version. While there are obviously advantages in terms of using hard disks beyond 32 Mb, the new DOS takes up more of the valuable 640 K RAM. Altima tells me that if you want, you can install an earlier DOS and regain the space. But 4.x does also include DOS Shell, an alternative to other shell programs on the market, some of which do not work with the new DOS unless you specifically get versions that are designed to work with the new operating system. Aside from DOS shells and other programs like Norton's unerase program that call on the directory structure, software generally works fine on the new DOS.

Etc.

The only criticism I have is the ease with which the built in-handle moves. On my unit—admittedly a very early production model that probably would not be sold—the handle binds unless you have the right and left side lined up exactly right. This is merely an annoyance, and has nothing to do with the functioning of the machine.

The documentation that comes with the Altima One is brief, but extremely clear. The machine comes ready to go, with installed autoexec.bat and config.sys files. This means that a novice does not have to spend time formatting the hard disk and setting up the machine. Changes in configuration are easily handled through a setup program. The documentation guides you through all of the necessary steps.

And finally, Altima gives a one year limited warranty covering parts and labor. (The Altima One, $2,699, Altima Systems, Inc., 1390 Willow Pass Road, Suite 1050, Concord, CA 94520, (800)356-9990.) ■

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Stop Squinting At That Screen

The number one complaint of laptop users is how difficult it is to find the cursor. The nature of LCD displays is that a small cursor is hard to find, especially when you move it rapidly.

My own preference has always been for something a bit larger than the quickly blinking cursor that's standard with all PC compatible computers. Over the years there have been quick fixes on bulletin boards that alter the way the cursor looks, but now there is a program devoted to this. *No-Squint* ($39.95) is a small file that you can place in your autoexec.bat file; the cursor will assume any one of five sizes and blink at a rate anywhere from the standard all the way down to a very slow blink.

This program is the simplest answer to the case of the vanishing cursor. It isn't guaranteed that you will never have cursor problems again, but it is possible that if you work primarily with text your cursor problems will be a thing of the past. Ken Skier, who designed the program, tells very clearly in the literature that comes with the program that there will be problems with the cursor in communications programs. But with that slight limitation, the program works flawlessly. This seems to be the best solution until the laptop manufacturers decide to tackle this problem on a hardware level. (*No-Squint*, $39.95, SkiSoft Publishing Corp., 1655 Massachusetts Avenue, Suite 79, Lexington, MA 02173 (617)863-1876.)

MAC @ WORK

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PC To Mac And Back: Designer Graphics
By Lenny Bailes
Continuing our series on converting graphics files, one of the more problematic elements of Mac-PC connectivity, Lenny Bailes discusses helpful utility programs and the surprising conversion capabilities of *Ventura* and *PageMaker*.

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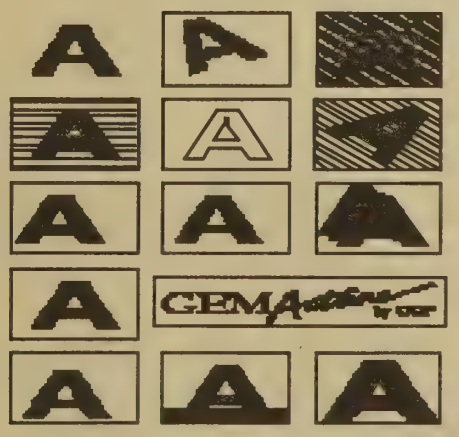
PC To Mac And Back, Part II—

Designer Graphics

By Lenny Bailes



These graphics, created on the PC, were converted to MacDraw PICT.

Last time we looked at PC-Mac connectivity (January 23, 1989, #52) we showed you how 256-color bitmap images can be shuttled around with shareware and public domain software. We deferred the issue of transferring and translating PostScript, vector art, and scanned TIFF images until some "ambassador class" software became available to make life easier for us.

Some connectivity has come through since my last writing on this subject. *Lumena*, *AutoCAD*, and *FreeHand* have joined the other PC-Mac switch hitters this year. This is good news for people who deal with output from these giants as an end product.

The problem most computer users face, though, is they can't afford to purchase many of these programs on even one platform, let alone two. You pick the one that seems closest to your needs and settle for it. Often there's some trick the "other program" can do that yours can't. What if you want to do Pantone colors with *Illustrator* but prefer *FreeHand*'s auto-trace feature? What if you want both *Ventura*'s document processing power and *PageMaker*'s portability?

Many people have one "powerhouse" program on their system, but aren't aware that they can share output produced by others. Work done

with various competing tools represents time spent and energy invested. Although we are constrained from duplicating the tools, we should be able to pass the output around and liberate the energy stored up on each other's hard drives!

HP Drawing Gallery users and *MacDraw* mavens have more in common than they realize. On the off-chance that they should meet, it turns out that their HPGL plotter files and PICT drawings may actually be exchanged and used on each other's computers. *GEM Artline* and *MacDraw* are on a chain linked by *Ventura Publisher* (which can print a *MacDraw* graphic newsletter on an HP LaserJet). *WordPerfect 5* users can take output from almost any Mac or PC program, including *Image Studio* and *Illustrator 88*.

Sometimes graphics portability can be accomplished just by moving files from the Desktop to DOS. Other times you can use inexpensive conversion utilities as a bridge. Translating files isn't as automatic as it should be yet, but you can do it by learning a few basic concepts about the nature of your stored images.

Background

Designer-quality artwork can usually be stored on Macs and PCs in two widely used formats, Encapsulated PostScript (EPS) and Tagged Image File Format (TIFF). This system was developed by Adobe, Aldus, and Microsoft, companies that dominate the graphics world on both computer platforms. EPS was developed by Adobe for use with PostScript printers and drawing programs. TIFF is a container format used for scanned images in multiple colors or artwork with several layers of grey shading.

Unfortunately, software companies differ in their degrees of technical sophistication. As a result, even though most high-level software deals in "EPS" and "TIFF", you may experience file incompatibility from program to program. Rather than shake our heads and give up when our programs refuse to load an image, we may overcome some of the problems, if we understand what's going on.

For instance, TIFF is a format that can include black and white images, grey-scale images, and color artwork. On the Macintosh side, most software will warn you about this. On the PC side, *PC PageMaker* and *Ventura* do not understand color TIFFs. So if you want to use TIFF files on these publishing programs, don't save them in color. (Aldus has recently marketed a special color upgrade for *PageMaker* on the Mac. It must be purchased and installed separately.)

Some software can handle black and white images, but chokes on "grey-scale" TIFFs. (*The Curator* on the Mac and most PC packages other than *PageMaker*, *Ventura*, and *WordPerfect 5* don't handle grey-scale images.) For those other programs, save your scanned artwork as a "black and white" TIFF. Some software may be able to produce a grey dither that simulates the grey levels that scanners can do. Dithering makes grey shades by mixing pixels as on or off only. True "grey-scale" pictures allow each pixel to have 4 to 16 levels of contrast.

An Encapsulated PostScript file is a list of programming instructions to be sent to a PostScript printing device (usually an Apple LaserWriter or Linotronic machine). A basic EPS file contains only those text instructions and can't be sent to non-PostScript printers. "Viewable" EPS files are a more recent development. They consist of a combination of PostScript instructions and a special screen image. "Viewable" EPS files can be looked at on-screen and also converted into something printable on an ImageWriter, Epson, or HP LaserJet. On a PC, viewable EPS files include bitmap TIFF images. On a Mac, the viewable EPS includes a PICT file.

PageMaker: Special Considerations

The most common graphics transfers are those made between one version of *PageMaker* and the other.

Here's a simple tip if you're adventurous—D.I.A. Cables in San Francisco sells a custom Mac-to-PC cable for under $30. Just run a communications program at each end and you've got a network. Files can be transferred at 19,200 bps. I was amazed the first time I saw this done at a large industrial graphics company. I was so inspired by the sight that I discovered an even cheaper way to move files across the gap. An old ImageWriter printer cable equipped with a 25-pin gender changer will also pinch-hit for expensive network software. You plug the round end into the Mac modem port and the other end into the PC's RS-232 serial port, run two communications programs, and you're on line. (Use a "direct" gender changer, not one that reverses the pin-outs as a "null modem.")

When you work with *PageMaker* files, which have been sent over by modem or direct-cable connection, you can get some mystifying error messages on the PC. Macintosh programs may refuse to acknowledge that your files even exist. The cardinal rule to remember about this is not to use the MacBinary option on the Mac for file transfers of any *PageMaker*-related files. *PC PageMaker* can't read MacBinary file headers. When you send publication files or linked graphics from a Mac to a PC, you must disable the MacBinary option on your communications software.

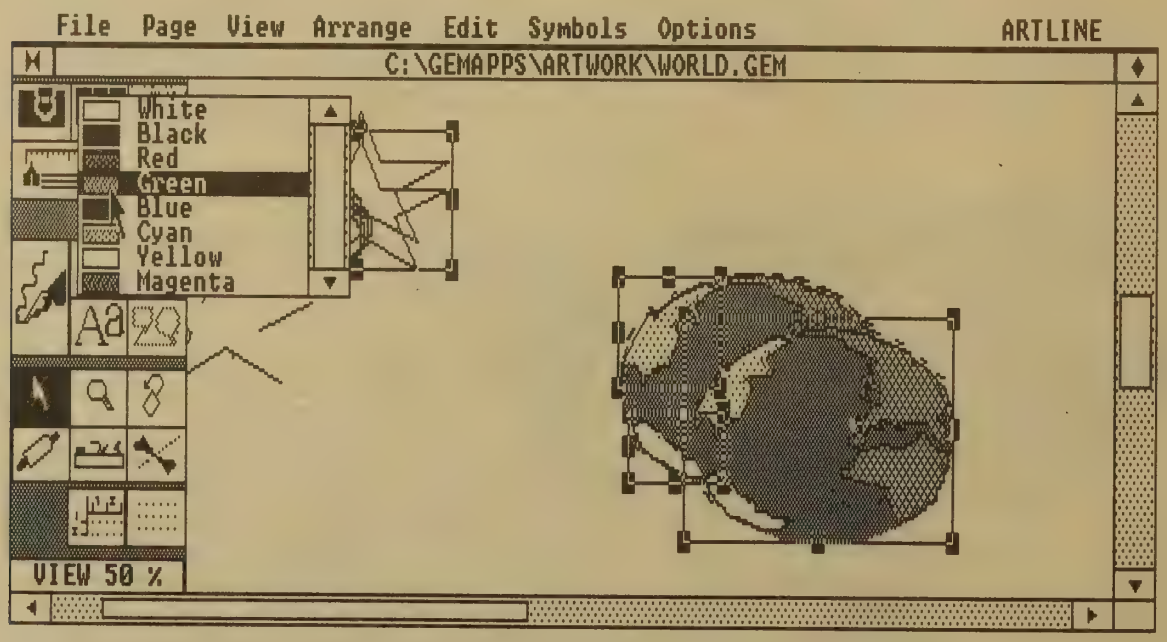
Two Mac programs, *MicroPhone* and Microsoft *Works*, allow you to do this successfully. *Versaterm*, *Versaterm Pro*, *Red Ryder*, and some others simply refuse to send binary files unless you put an X in the MacBinary box. If you have to utilize uncooperative software, you can still remove the Mac file header once you're on the PC side. *Decap* and *Mac2VP* are two shareware PC utilities originally written to strip out MacBinary information for *WordPerfect* and *Ventura Publisher*. They work for *PageMaker*, as well. (*The Graphics Transformer*, discussed in the main article, will also strip out MacBinary information for TIFFs and *MacPaint* only.)

On the Macintosh side, your files need to include the correct filetype information for applications to recognize them. Frequently, files transferred from the PC show up on the Desktop with "Text" icons, which are not what *PageMaker* and *Ilustrator* look for. You can fix this with *ResEdit*; click on Get Info, and for *PageMaker* 3.0 publications set the filetype to "AB3". The creator is "AD3". TIFF filetype should be "TIFF". Macintosh EPS files are "EPSF". "PC Preview" EPS files are "EPSP." As soon as you change the filetypes from "TEXT", your Macintosh programs can see and load the transplanted PC files.

If you move PC *PageMaker* files in a controlled situation (under TOPS or *MacLink*), you may find that they pop over without these problems. When you load files into Mac *PageMaker*, though, there may be grey boxes where your illustrations were. The rule of thumb for this is: if your graphic file was 64 K or less, a facsimile of it is incorporated into the publication (.PM3) file. You'll see the image on-screen on the Mac and the graphic will be printed. *PC Paintbrush*, Microsoft *Paint*, and other bitmaps actually cross over, if they're small enough in size.

If your graphic is larger than 64 K and a compatible bitmap (TIFF, *MacPaint*), *PageMaker* will link it separately. Large *PC Paintbrush* bitmaps aren't linked. If the graphic is a vector file *(PC Plotter* file, Lotus PIC) you may see a "screen facsimile" bitmap, but the file won't be linked. You won't get a true vector printout of Lotus pictures or plotter graphics, though Mac *PageMaker* will print the "screen facsimile."

Going from Mac to PC *PageMaker*, PICT and Mac EPS files are not linked.



PC graphic converted to MacDraw file and imported into PageMaker for this page layout.

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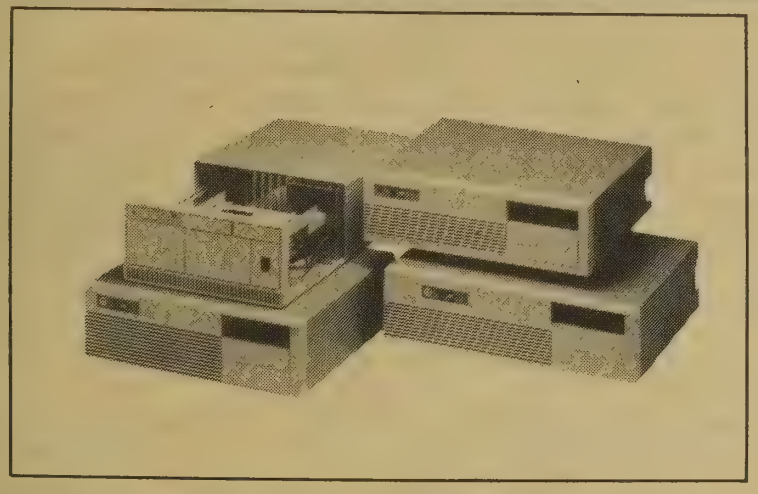

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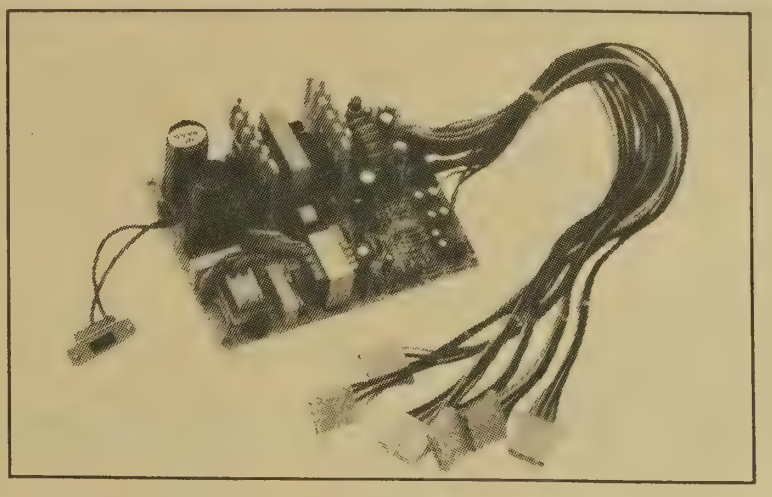

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Creating Vector And Previewable EPS Files

You can make almost any graphic created on either the Mac or the PC print on the other side by converting it to a compatible format. *The Graphics Transformer* on the PC and *The Curator* on the Macintosh are two valuable graphics tools for this. Together they will let you create viewable EPS files printable on either system.

The Graphics Transformer, previously called *Reflection*, is distributed by IMSI Software. The program is a licensed remarket issue of a package called *Hijaak*, which is sold on the East Coast by Inset Systems. This is the cheapest and most useful commercial conversion package on the market for PCs. *The Graphics Transformer* converts both bitmap and vector files between the most popular PC image formats (including *PC Paintbrush*, GEM, Microsoft TIFF, CCITT TIFF, *Dr. Halo*, WordPerfect Graphics, AMIGA IFF, CompuServe Graphics (GIF), Hewlett-Packard Printer Language, Hewlett-Packard Graphics Language (Plotter files), Lotus PIC, and Encapsulated PostScript).

The latest version (1.1) can take any bitmapped image and write PostScript instructions for it, making an EPS file. The PostScript instructions can be merged with a TIFF bitmap of any image to become a viewable EPS (which you can see on-screen in *Ventura Publisher* 2.0 or *PC PageMaker*). Batch files are included to make some EPS conversions completely automatic.

The Graphics Transformer also does direct vector-to-vector conversions between HPGL plotter files and Lotus PIC files. The Hewlett-Packard plotter format is available in 16 colors for any PC drawing or drafting application that uses an HPGL driver. *AutoCAD* and *AutoSketch*, *HP Drawing Gallery*, *Harvard Graphics*, *Micrografx Draw* and *Designer*, *GEM Draw*, *Graph*, and *Artline* are some of the applications that can print to this format.

Why should a Macintosh owner care about this? Well, one Mac user, who wanted to incorporate Lotus graphics on his Mac II, has written a utility called *PICturePICTure*. This is an add-on Apple AFE file translator, that reads Lotus PIC files from a Mac disk and exports them in *MacDraw* format (PICT or color PICT2 files).

Now, how about taking a multilayer 3-D design from PC *AutoCAD* and using it in *MacDraw* or *Cricket Draw*? You don't have to buy Mac *AutoCAD* to do this. The PC *Adobe Illustrator* has a conversion utility for *AutoCAD* output, but you don't need that either!

Print the PC sketch from *AutoCAD* to an HPGL plotter file in up to 16 colors, then use *The Graphics Transformer* to make it into a Lotus PIC (you can regulate the pen colors and line widths in the translation). Now send your Lotus PIC file to the Mac over your $15 printer cable, and *PICturePICTure* will make a Macintosh PICT out of it. You don't even have to reset the filetype with *ResEdit* for this one.

While you're at it, you may also want to send over some of the "PC Preview" EPS files you've built with *The Graphics Transformer*. Once you've changed their filetype on the Mac to EPSP, *The Curator* can read and resave them as viewable Mac EPS files. (This trick works for ordinary black and white images only, no grey-scales. To see grey-scale pictures on-screen in both *PageMakers*, use TIFF files if you don't own *Illustrator* or *FreeHand*. *Image Studio*, *Cricket Paint*, and *Studio 8* will all load the TIFFs and generate grey-scale Mac EPS files if you want them. *Illustrator 88* and *FreeHand* 2.0 both produce grey-scale EPS files in either Mac or PC format, but *FreeHand* can only "place" TIFF files as templates. *Illustrator 88* doesn't place TIFFs.)

Ventura Publisher: A Great Conversion Utility

Ventura Publisher owners can get considerable mileage out of their software as a graphics conversion tool. *Ventura* reads most standard PC bitmap and vector formats, and *MacPaint* and PICT files from the Mac. When *Ventura* loads an image, it automatically builds a new file in GEM format out of the base file. If you own other Digital Research products, you can use the GEM files cloned from Macintosh images. *GEM Artline* can add color and PostScript font effects to files produced by *MacDraw* on the Mac. *GEM Paint* can colorize TIFF and *MacPaint* images.

What *Ventura Publisher* 2.0 can do with PICT files is simply amazing. *VP* 2.0 not only handles the graphic elements generated in *MacDraw*, but it matches fonts and automatically scales them to fit within a resized frame (although it will usually convert all typestyles to Helvetica). Import a *MacDraw* file over for *Ventura*, and an H-P LaserJet or Epson will print a faithful rendition of it in any

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scale just as though it were PostScript! (*Ventura 1.1* has some difficulty reading Macintosh PICTs, but the problem is alleviated by a patch from Xerox. Complicated drawings may not be printed with 100% accuracy.)

For best results, use PICTs saved by *MacDraw*. PICTS from other Mac programs, like *Cricket Draw*, will sometimes work if they have been loaded into *MacDraw* and resaved before sending them to the PC. PICTs produced by *The Curator* work if they were originally drawn as vector files. PICTs produced by *MacDraw II* work if all text is Helvetica. The maximum file size *Ventura* can handle is around 50 K.

Further Tips And Caveats

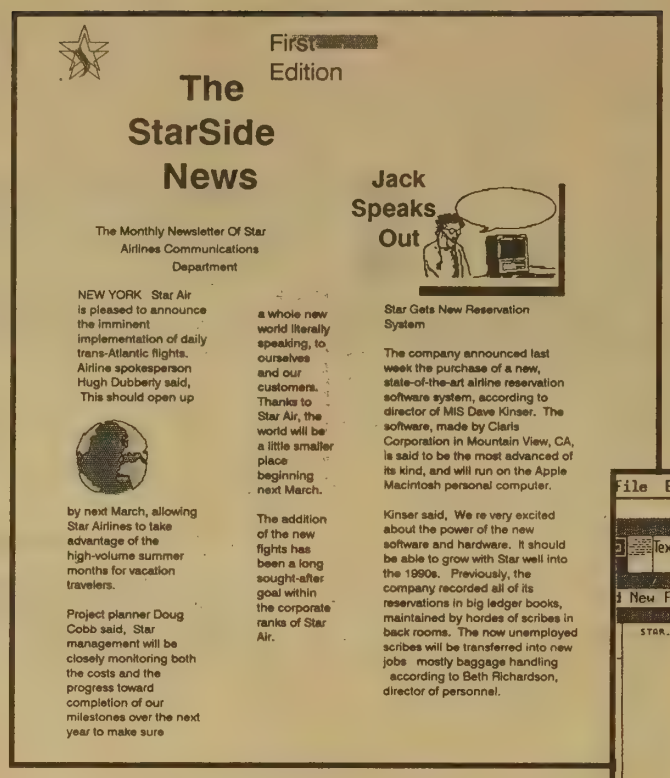
The techniques I've discussed in this article will let you deal with a good many graphics transfer problems successfully. I don't want to negate the necessity for people from MS-DOS and Macintosh software companies to get together and work out some better standards. There are still applications that balk at reading TIFF and EPS output from other applications. It would be of great benefit to end-users if TIFF and EPS became universal standards for either platform.

Some anomalies I've noted:

1. TIFF and EPS files

a) Some programs save TIFF files in compressed formats (many Mac scanning programs and DRI's *GEMScan* for the PC). Remedy: *The Graphics Transformer* will convert CCITT compressed TIFFs to the uncompressed format that most programs need. Save "uncompressed" files whenever you have the option.

b) *WordPerfect 5* wouldn't read the *Studio 8* grey-scale TIFF I tested, though it would load other grey-scale TIFF and EPS files from *Illustrator 88* and *Image Studio*. Electronic Arts tech support tells me that a new release of *Studio 8* will be out soon incorporating Aldus's updated TIFF specs.


First Edition

The StarSide News

The Monthly Newsletter Of Star Airlines Communications Department

Jack Speaks Out

NEW YORK Star Air is pleased to announce the imminent implementation of daily trans-Atlantic flights. Airline spokesperson Hugh Dubberly said, This should open up a whole new world literally speaking, to ourselves and our customers. Thanks to Star Air, the world will be a little smaller place beginning next March.

by next March, allowing Star Airlines to take advantage of the high-volume summer months for vacation travelers.

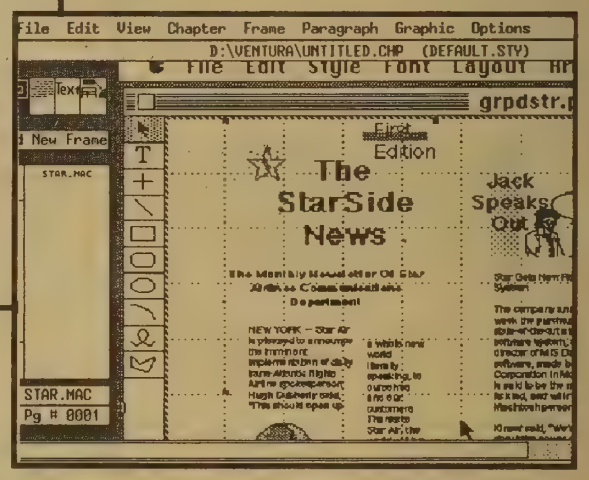
Project planner Doug Cobb said, Star management will be closely monitoring both the costs and the progress toward completion of our milestones over the next year to make sure

The addition of the new flights has been a long sought-after goal within the corporate ranks of Star Air.

Star Gets New Reservation System

The company announced last week the purchase of a new, state-of-the-art airline reservation software system, according to director of MIS Dave Kinser. The software, made by Claris Corporation in Mountain View, CA, is said to be the most advanced of its kind, and will run on the Apple Macintosh personal computer.

Kinser said, We re very excited about the power of the new software and hardware. It should be able to grow with Star well into the 1990s. Previously, the company recorded all of its reservations in big ledger books, maintained by hordes of scribes in back rooms. The now unemployed scribes will be transferred into new jobs mostly baggage handling according to Beth Richardson, director of personnel.



Newsletter prepared on the Mac in MacDraw, imported and viewed in a Ventura window on the PC.

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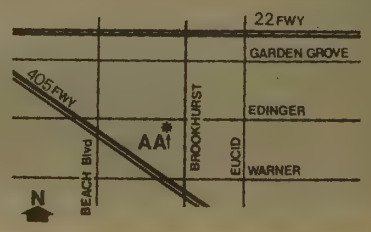

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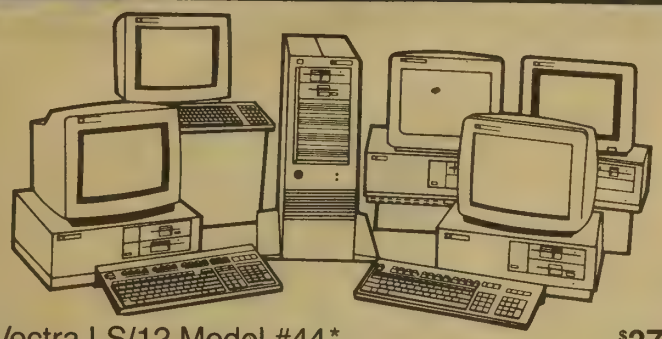

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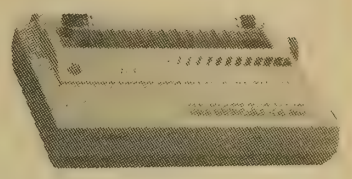

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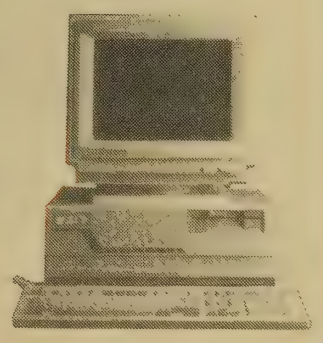

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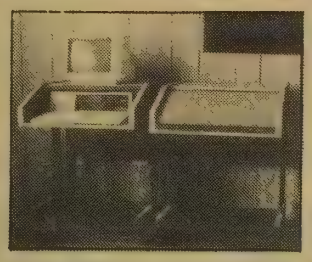

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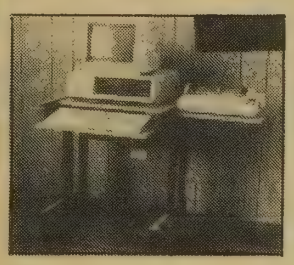

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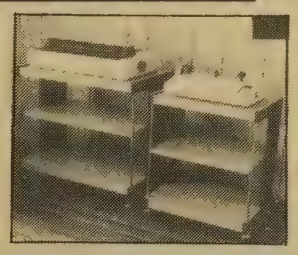

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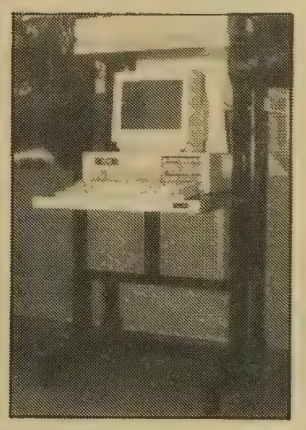

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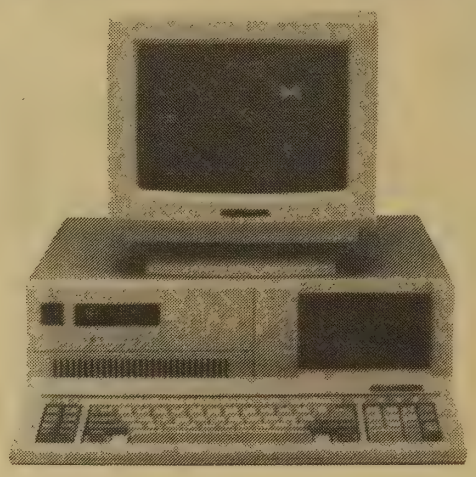

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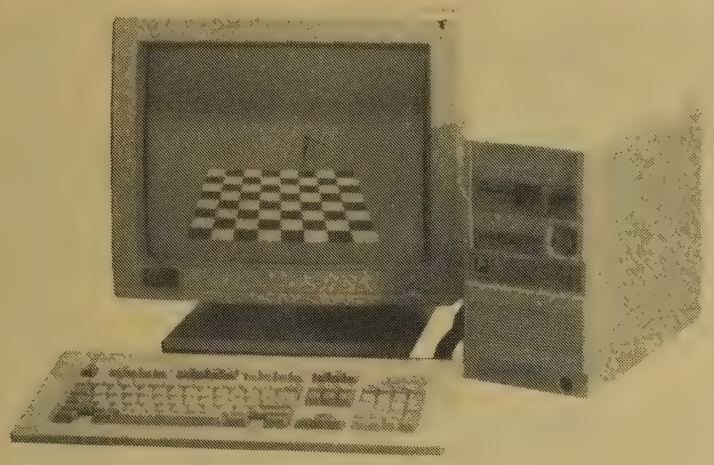

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c) *FreeHand* color EPS files work with *PC PageMaker*, but not with *WordPerfect 5* or *Ventura*. I also discovered that Mac *Illustrator* wouldn't read some EPS files produced by Mac *FreeHand*, although *PageMaker* would handle them. Some "viewable EPS" files produced by *The Curator* show up in *Illustrator 88* as grey boxes. *PageMaker* displays the on-screen image of the same files.

2. I couldn't get the HPGL drivers used by Digital Research GEM products to produce 16-color files for conversion to Macintosh PICTs. It may be possible to preserve the color translation, but I didn't learn how in time for this deadline. The files I ended up with were in one or two colors with many tiny object groupings. On the Mac II I selected and grouped the images into more coherent objects for additional drawing and color modifications. (I was able to transfer files from *Harvard Graphics* and *AutoSketch* 100% accurately to the Mac with *The Graphics Transformer* and *PICture PICTure*. With *Harvard Graphics* I used the HP ColorPro (7440A) plotter driver.)

3. *GEM Draw* and *Artline* sometimes run out of memory and can't process all elements of complicated PICT files translated by *Ventura*. *Artline* handled all of the graphic elements, but sometimes couldn't process text. *Draw* handled some of the graphic elements. (*Ventura* itself had no problems displaying and printing the *MacDraw* files I tested.)

If your *MacDraw* file is a multilayered PICT, with some bitmap information, you'll have to copy the bitmap part on the Mac to a *MacPaint* file and place it separately in *Ventura*. Only vector and text information is processed with the PICTs. (If you're using *SuperPaint*, save the entire image as *MacPaint*—*Ventura* doesn't handle information from *SuperPaint* PICTs.)

4. Remember to remove the MacBinary headers from TIFF and EPS files if you transfer them with a modem. TOPS doesn't seem to care about this.

Summary

The potential involved in making designer graphics portable between Macs and PCs is gradually becoming obvious. Several more products to facilitate this are being promised by large companies for release in the near future. In the meantime, *The Graphics Transformer*, *The Curator*, and *PICture PICTure* can significantly increase your Mac-PC file connectivity if you need it right now. ■

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Lenny Bailes is a teacher in the Bay Area, and has been writing about personal computers since 1987. He does part-time consulting and product testing and can be reached on The WELL as "jroe" or at 415/285-6232.

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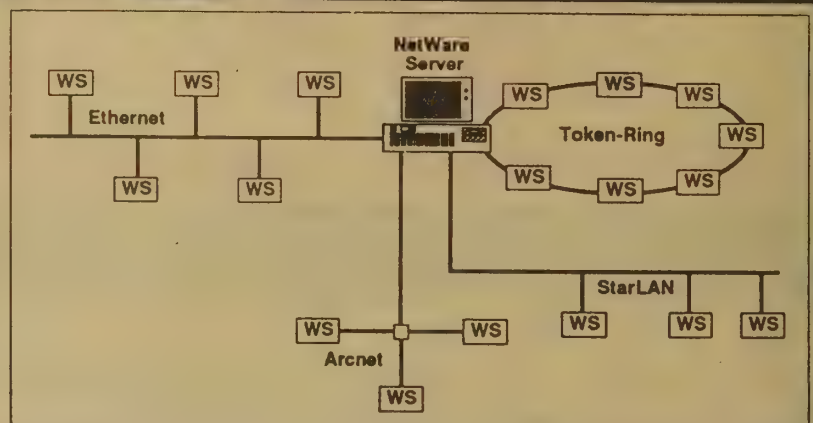

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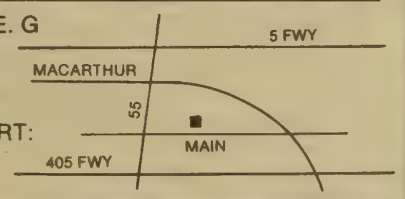

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MAC-PC CONNECTIVITY

BY ROBERT BEAUCHAMP

When Is A Mac Not A Mac?

When It's A PC Remote Terminal

Macintosh purists should hate *PC MacTerm*. Their flesh should crawl, their spines arch, and their hair stand on end at the very idea of what *PC MacTerm* does. All across the land loyal and steadfast Mac enthusiasts should rush to their user group meetings and raise a united cry of disdain at Dynamic Microprocessor Associates for this act of blasphemy.

You see, *PC MacTerm*, as its name implies, turns your Macintosh into an IBM PC compatible terminal, a feat many of the faithful will not even believe possible. However, I'm here to testify that it can be done, and done very well at that.

It is rather ironic, as the DOS world ponderously attempts to catch up with the Mac's graphic interface, that a company like DMA can turn the whole issue on its head and come up with an excellent connectivity solution. Rather than spend thousands of dollars trying to get your PC to look like a Mac, you can spend a couple hundred and get your Mac to look like a PC.

What Is A Remote Terminal?

Turning a Macintosh into a PC remote terminal is bound to offend the sensibilities of some. However, for the connectivity-minded, the prospect of actually using PC *applications* on their Mac is truly exciting.

A remote terminal is simply a PC that calls up another PC or a mainframe computer and accesses its files and applications. This is usually done over the phone lines with each computer having a modem.

For example, you might have a PC at home and want to access files on your PC's hard drive at work. Rather than copying files onto floppy disks and bringing them home, you can work off the PC at work as if you were actually there.

This is especially important to those who have PS/2 speedsters with 110 Mb hard drives at work and an original IBM PC with a single floppy at home. The PC at home becomes the *screen* from which you work from, while the PC at work is the *computer* you work from.

Copyright © 1989 by Robert Beauchamp. All rights reserved. *Rob is a freelance journalist and documentation writer who resides in Minnesota and misses, sometimes, the lovely and crowded Bay Area.*

DMA's PC remote terminal product is called *pcANYWHERE III*. There are two parts to *pcANYWHERE III*. There is the software that manages the host computer, the one with the big hard drive, and the software that runs the remote terminal, your PC at home.

While *pcANYWHERE III* comes with the software necessary to run PC remote terminals, running a Mac remote is slightly different. Hence the need for *PC MacTerm*.

pcANYWHERE III also supports a multiuser environment in conjunction with *DESQview 386*. However, you do need a 386-based computer to do this. Otherwise, all you need to run *pcANYWHERE III* is a PC with a disk drive and a serial port. *PC MacTerm* will run on any Macintosh.

How Do They Do It?

We've been trained that the Mac is so fundamentally different from the PC that the concept of using PC applications from your Mac is a hard one to grasp. However, if bits and bites are the universal building blocks of computer software, then photons are the universal components of what goes on your screen. What *PC MacTerm* is doing is simply allowing the host PC, running *pcANYWHERE III*, to show its stuff on your Mac's screen. Neither environment has a proprietary lien on physics.

The trick, then, and not an easy task to accomplish, is to have the IBM screen show up on your Mac in a readable format and allow you to use your Mac keyboard to operate software designed for a PC keyboard.

To solve the first problem DMA opted to represent the 80 X 25 text screen that is the PC standard. This allows you to use all the PC programs that use this standard, such as *Lotus 1-2-3* and *WordPerfect*.

PC MacTerm does not as yet support the PC graphics standards EGA, VGA, or MCGA. Therefore, you cannot use it to access such programs as *PC Paintbrush*.

However, this does not mean that you can't access text-based applications while they are running in a graphics mode on your host PC. For example, you may have a VGA card in your PC, and when you run *WordPerfect* it takes advantage of the clarity and colors your VGA card offers. Since it is still text-based, however, you can access it from your Mac with no problems. With a program such as *WordPerfect 5.0*, which has both text and graphics elements, you can use the word processing part but not the page preview or graphics placement capabilities.

The second problem is keyboard compatibility, and *PC MacTerm* handles this with classic Mac style.

If you have the extended keyboard or a third-party keyboard such as the DAC 101, you don't have to worry about this, as the shift, alt, cntrl, and function keys operate as they would on the PC.

If you have the standard Macintosh or Macintosh Plus keyboard, *PC MacTerm* provides a visual function key menu across the top of your screen. All you have to do is click on the function key you desire. You can also hit command and the appropriate number from your keyboard to use function keys. *PC MacTerm* provides visual as well as keystroke equivalents for all the other PC keyboard keys such as cursor, esc, and the numeric key pad.

Using Your PC On Your Mac

There are advantages and disadvantages to using your Macintosh as a remote terminal. The first advantage is that if you only have to use text-based applications from your PC, you don't have to buy a PC to work at home. All those bosses out there who won't pay for a Mac at home now have one less excuse.

Another advantage is that you get to use your Mac's cut and paste capabilities while using your PC application. It is a joy to highlight a whole section of a *WordPerfect* document, cut it, and paste it somewhere else with your Mac's mouse. *WordPerfect* doesn't even support a mouse.

You can also take text from your scrapbook and place it in your PC word-processing document. Conversely you can take selections from the PC document and keep it in the scrapbook for use in your Mac applications.

The biggest disadvantage is the time lag between your commands and their implementation. This is due simply to the slow rate at which information travels over the phone lines. A faster modem, obviously, means better performance.

The other disadvantage, as stated before, is *PC MacTerm*'s inability to use PC graphics-based applications.

Other Connectivity Issues

PC MacTerm doesn't stop here, however. It also allows you to do remote printing and file transfer.

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report on his or her desk before you even come in to work?

You can also print your PC document on your Macintosh printer. However, if you're going to do serious printing on your Mac, DMA itself admits that using the Mac print function is not the best way to go. There are too many control characters and other assorted bothersome material that annoyingly fill the gaps between your text as you print on your ImageWriter.

PC MacTerm supplies you with the IBM fonts necessary to achieve true PCishness. Those who balk at putting anything called IBM in their system file probably won't want to use *PC MacTerm*'s print function anyway.

The best way to print your PC files on your ImageWriter, according to DMA's technical support, is to translate them into a Mac word-processor format and print them from there.

However, due to the magic of PostScript, *PC MacTerm* can detect a PostScript file coming over and will print PostScript files on your Mac's LaserWriter.

File Transfers

What would a connectivity product be without file transfers? At present *PC MacTerm* handles file transfers rather awkwardly. You do file transfers from your PC and Mac and back again from the PC's DOS prompt. DMA has assured me that it will have a Mac oriented file transfer function in the next release to be demonstrated at the upcoming Macworld Expo, Boston.

PC MacTerm does not have file translating capabilities. However, in combination with the file translating accessory you get for free with your Macintosh's system software, *PC MacTerm* offers some competition to such products as *LapLink Mac* and *MacLink*. For a list price of $244 you get *PC MacTerm* and *pcANYWHERE III*. This is a lot of connectivity for the money.

Cable Issues

You don't need two modems and a phone line to take advantage of *PC MacTerm*. You can directly connect your PC and a Mac with a cable through their serial ports.

You may very well ask, "Why should I run a PC program on my Mac while my PC is sitting two feet away?" The answer is that *pcANYWHERE III* runs in the background. You can access PC applications while someone else is using the PC for something else.

Everything runs much faster when directly connected because you can assign a baud rate up to 57000, which is much higher than the fastest (9600 bps) modem.

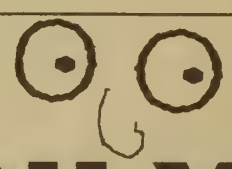
You can't use just any cable, however. The cable that comes with *MacLink* won't work, while the cable that comes with *LapLink Mac* will. There are complete cable specifications included in the *PC MacTerm* documentation. You can either make the cable yourself, have your local computer dealer make one for you, or buy one from DMA.

You get to use your Mac's cut and paste capabilities while using your PC application. It is a joy to highlight a whole section of a WordPerfect document, cut it, and paste it somewhere else with your Mac's mouse. WordPerfect doesn't even support a mouse.

Conclusion

In an era when slick marketing has begun to dominate the computer industry, *PC MacTerm*'s and *pcANYWHERE*'s packaging may not attract the casual software shopper. However, its functionality rises above its plain face.

With the promised improvements of added file transfer features and the use of PC graphics based applications, *PC MacTerm* should become a well-known product. If for no other reason than this: the thought of running Microsoft *Windows Presentation Manager* from the Mac is an irony too delicious to ignore. ■



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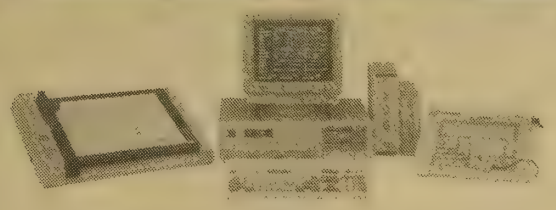

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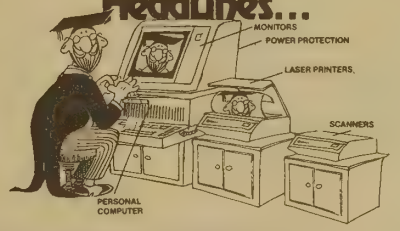

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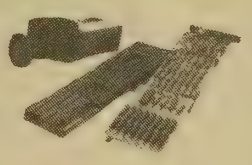

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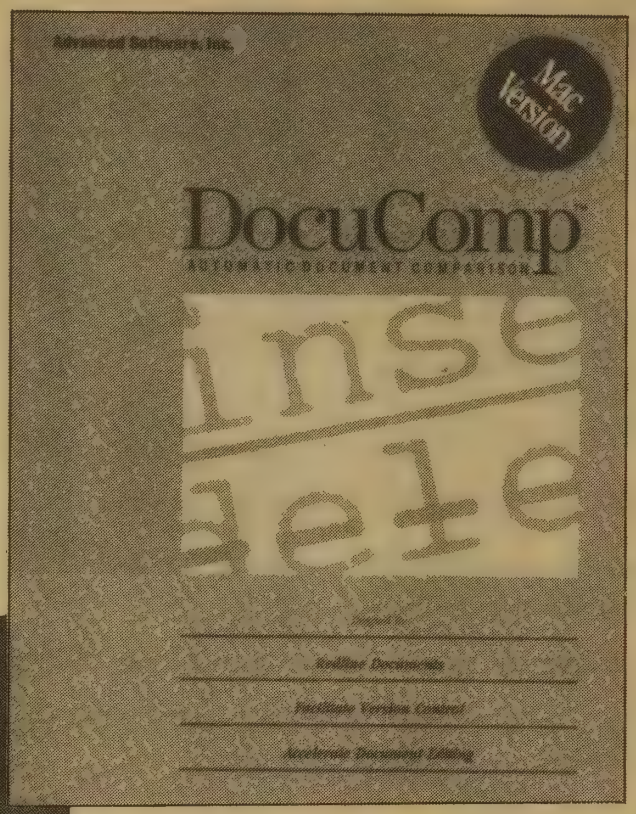
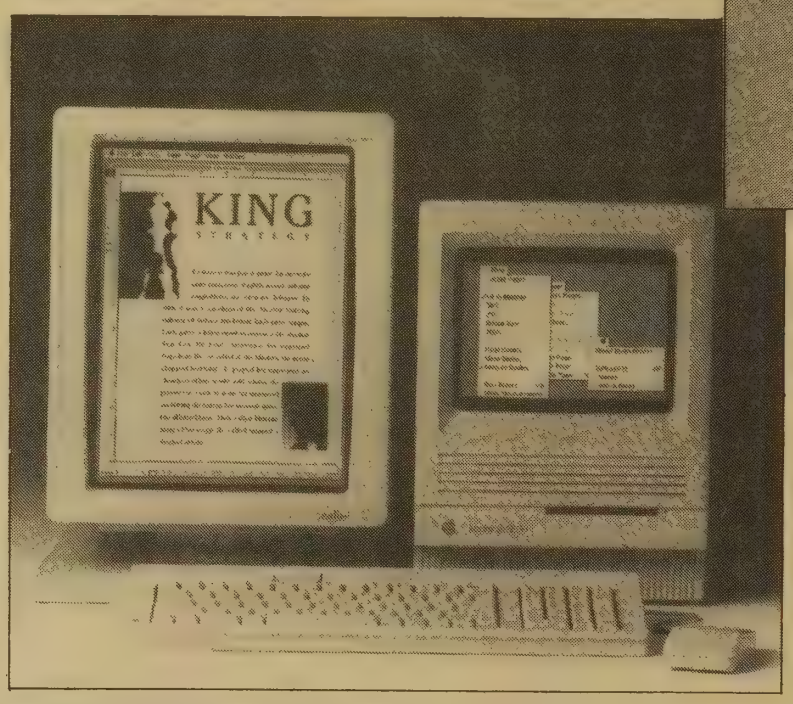
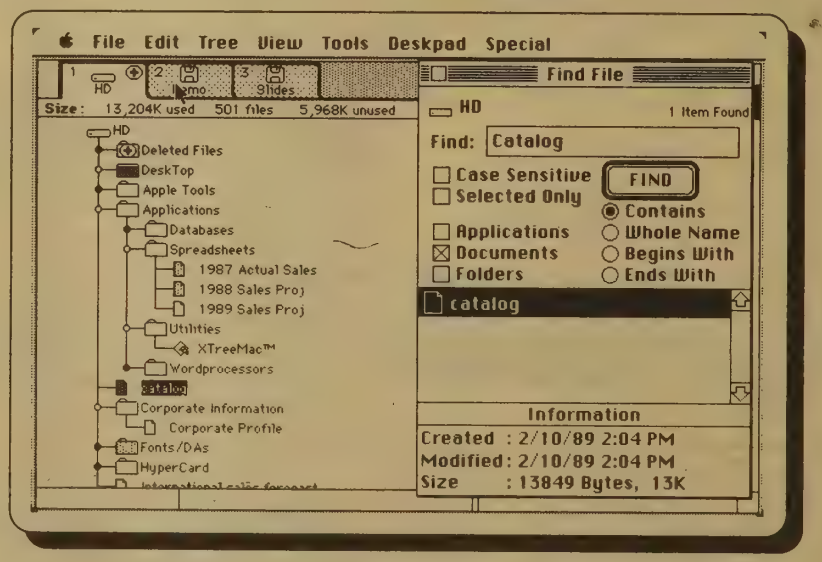




Radius Full-Page Display For The Mac SE/30

Radius Inc., the leading maker of graphics products for the Macintosh, has announced the Full Page Display System for the Macintosh SE/30. The system consists of the Radius Full Page Display and the Radius FPD-SE/30 Video Interface, as well as *RadiusWare*. The Radius Full Page is a 15" high-resolution monitor featuring a low curvature screen. It displays a full 8.5" X 11" page without reducing or scrolling. Designed for desktop publishing, the 640 X 864 resolution and 77 dpi surpass Macintosh standards for image clarity and focus. The 69 Hz refresh rate provides a stable, flicker-free image for extended viewing comfort. *RadiusWare SE/30*, the Radius proprietary system software that accompanies the Full Page Display, includes Tear-off Menus, Screen Saver, Wide Display Option, Enlarged Menu Font, Screen Capture, and Cursor Locater. The Radius Full Page Display System for the Macintosh SE/30 will be available worldwide in July. The FPD-SE/30 Video Interface will list for $595. The Full Page Display lists for $895. Radius, Inc., 1710 Embarcadero Road, San Jose, CA 95131. (408)434-1010.

Integrated Macintosh Utility Combines Disk Management With File Undelete And Security Protection



XTreeMac is the first integrated utility to combine disk management with file undelete and security protection. With *XTreeMac*, Macintosh users can finally see a graphic representation of files in a tree-like display. In seconds, *XTreeMac* shows users a complete picture of their hard or floppy disk. It lets users easily locate, copy, move, and delete files from multiple files from multiple folders, on multiple volumes without clicking through a series of windows. In addition to its file management capabilities, *XTreeMac* offers Macintosh users a combination of hard disk protection and security features including data recovery and security protection. ($99) XTree Company, 4330 Sana Fe Road, San Luis Obispo, CA 93401. (805)541-0604.

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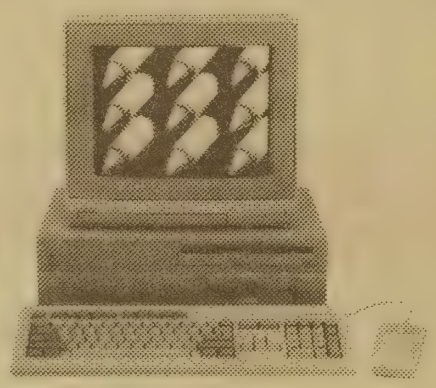

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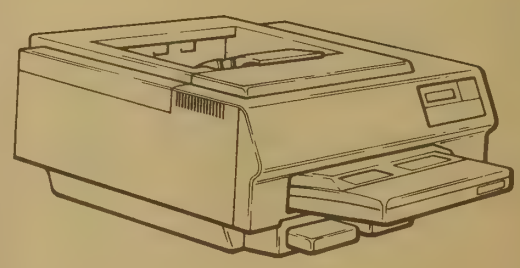

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BY MATTHEW LEEDS

Wish List Misadventure

The Perils Of DOS Ports

After four years of Amiga software, you would think that it had all been said and done. Sure, improvements to existing programs still need to be made, but what else could anyone ask for? Just wait.

Two categories I've been looking for are free-form databases and note-it utilities. Note-it utilities are like 3M's Post-It™ yellow sticky notes—scribble a short note, and stick it on a document. This sort of thing is already available on MS-DOS and Mac machines. You can tag a note to a spreadsheet cell to remind yourself how you derived a formula or to part of a word-processing document to note a section that needs revision or fact checking. The note appears in its own small window, and can be popped open or put away. Simple in concept, so far difficult to execute. Developers, take note.

A free-form database is much like an open shoebox. Toss notes into it at any time with no thought to their format or organization. Ask for any information back at any time, and the relevant info shows up on the screen. No bothering with defining fields, counting characters—just type and go. Once again, this kind of application is available on other machines. Much easier to use than traditional databases, friendlier than a Rolodex.

I thought I'd died and gone to heaven when I saw an ad recently for a product called *FINDEX V*, a free-form database for the Amiga. The ad promised just about every feature I could ask for: global search, no fields, import and export, mail merge. Only the screen shot held a hint of the disappointment to come. It had a status bar with function key commands, but no sign of an Intuition interface.

I contacted the publisher, E. Arthur Brown Company, and asked for a review copy. It arrived in a few days. I own two Amigas: one a more-or-less stock A1000 I test most software on, the other a full-blown A2000 with lots of memory, hard disk, FlickerFixer, and multisync monitor. I booted up *FINDEX* from its own boot disk and started the program.

Normally I write protect any disk I stick in a machine until I've had a chance to check it for viruses. *FINDEX* won't run from a write protected disk.

FINDEX is a port from the MS-DOS environment written in True BASIC. It tends to run a little slowly, and at first I thought this might be the reason. It also has an odd mix of DOS-inspired and Workbench-like interface. Some commands are keystroke only, others allow the use of a mouse. I spent some time using *FINDEX*, and by and large it does much of what I had hoped it would.

It also does some other things that have resulted in my putting it back on the shelf. It has two very nasty defects. The first is that it opens its own custom screen with no front-to-back gadgets and no drag bar; it refuses to respond to the AMIGA M-N combination that toggles screens back to front. This locks out the use of any other program while it is running unless you use a utility to cycle screens. The other defect is that it eats CPU cycles. If you run Performance Monitor while running *FINDEX*, you would find that the available CPU time drops to zero. This goes on even when the program is just sitting there waiting for you to give it a command. This kind of resource hogging is unforgivable on a multi-tasking machine.

I contacted the publisher to ask about this behavior. They said that the program worked as they intended, and that they intended *FINDEX* to be used all by itself. The distribution disk even lacks an icon for the CLI, although you can open one from inside *FINDEX*.

If you are a developer, you may want to take a look at products in these two categories. The Amiga could use these types of applications; so could I. Just make them Amiga products and not a quick port.

Copyright ©1989. All rights reserved. *Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.*

Amigas And Music

In other news, the Amiga is making headway in the professional music field. Roger Dannenberg, a researcher at Carnegie Mellon, demonstrated a prototype of a "MIDI Programmer's Tool Kit" at the NAMM Expo earlier this year. The Tool Kit is to become a standard MIDI device driver. This will allow developers to dramatically shorten the time it takes to create new music software for the Amiga. It will also ensure compatibility between applications competing for resources on the Amiga's multitasking operating system

The addition of a MIDI device driver will add to the existing base of new MIDI-based supporting files available for the Amiga. A MIDI.library has

Only the screen shot held a hint of the disappointment to come. It had a status bar with function key commands, but no sign of an Intuition interface.

been available for some time, and conversion utilities that change SMUS files into MIDI standard MFF (MIDI File Format) files and play MFF files are also available.

Image Processing

Good Amiga companies tend to spawn other good Amiga companies. An ASDG alumni, Eric Lavitsky, has started his own company, Active Circuits, Inc. Its first Amiga product is *ImageLink*, an image conversion and display program. It takes full advantage of the Amiga as an image processing workstation, offering conversion and display of Amiga, Macintosh, and Targa images. It directly supports conversion of all IFF formats, including 24-bit formats like ASDG's, Sculpt and Turbo Silver 24-bit files, DigiView RGB files, Targa files, Mac PICT, and PICT2 24-bit files. There are also plans to support GIF, TIFF, and Sun Rasterfile files. All of these formats can also be previewed either on the Amiga directly, through Amiga frame buffers, or on a Targa or ATVista board via a BridgeBoard.

You have full control over the color conversion, dithering and scaling, and color map conversion. An excellent Intuition interface is provided, as is full control via AREXX. *ImageLink* can be used with the Amiga to implement an image server in a multi-platform network, allowing remote conversion between image formats. It also provides access to the imaging capabilities of the Targa and ATVista boards. Active Circuits will also produce custom modules to match customer's needs. (Active Circuits, Inc.,106 US Highway 71, Suite 101, Mansquan, NJ 08736)

ImageLink can be used with the Amiga to implement an image server in a multi-platform network, allowing remote conversion between image formats.

Changes: New President At Commodore

In case you haven't heard yet, Commodore US has a new president, Harold Copperman. I had a chance to meet Mr. Copperman at the Amiga Developers Conference in San Francisco in June. He made quite a few promises regarding changes he was planning to implement—better attention to customer's needs including hiring a senior VP of customer satisfaction, a budget for advertising (reported to be around ten million dollars, mostly for TV), and a hard look at the way CBM does business.

That hard look has resulted in the end of an old friend, *Commodore Magazine*. I had written, on and off, for *Commodore Magazine* for the last three years. In a sense, it's funny; while at DevCon, several Amiga journalists, including myself, tried to guess which Amiga magazines were going to get caught out during the shakeout we all believe must come to pare down the glut of Amiga publications currently on the market. None of us thought to mention *Commodore Magazine*. I wish the staff good luck in whatever they move on to. ■

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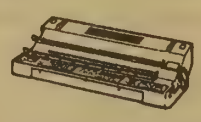

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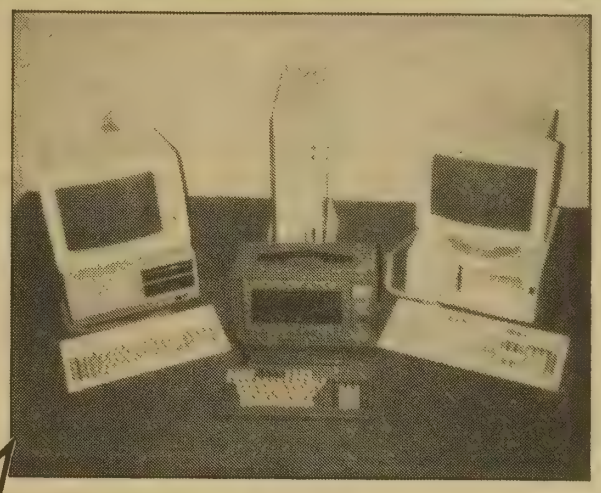

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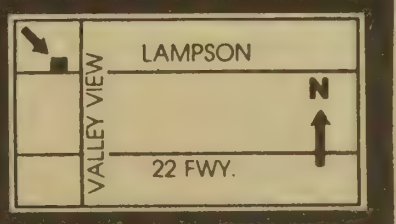

BY BENNETT FALK

The Black Box

Perhaps it was inevitable that, in a world of putty-colored rectangles, someone would finally build a black box, something that managed to be both useful and mysterious. NeXT has packaged its first computer in just this way: it is a black cube tethered by a single cord to a monitor and keyboard. On the outside there are connectors for just about every attachment imaginable. On the inside there are exotic components, including an optical disk drive and digital signal processor. The operating system is Carnegie Mellon University's Mach, functionally compatible with Berkeley UNIX 4.3, but with a much different approach to processing from that of UNIX.

The NeXT computer illustrates better than any other product available what has become of the workstation notion. Computer workstations and their users are clearly in transition, but no one is exactly sure what they are in transition to. The audience for workstations is growing, but as it has grown, ideas about what to use workstations for have become more diffuse. This in turn poses certain problems for manufacturers who must build hardware for lots of different uses.

Early on, workstations were used almost exclusively for scientific and technical applications. Because they gave the programmer a single interface from which every aspect of program development could be manipulated, the first workstations were particularly good tools for software engineering. In the scientific community workstations were used to distribute the burden of computationally intensive jobs.

Eventually, improved graphics capabilities made workstations interesting for applications in architecture and design. Faster processors, lower prices, network connectivity, and database software lured first the business community and finally a wider general audience into the workstation camp.

The NeXT computer was built from the ground up as a workstation for this more general audience. Marketed as the "scholar's workstation," it is supposed to be as useful for students of music or comparative literature as for computer science devotees. The promise is that the NeXT workstation has something for everyone.

Hardware

The hardware and software specs of the NeXT package certainly bear this out. Inside the black box is a single board computer with a Motorola 68030 CPU running at 25 MHz. The system also contains a 68882 floating point processor and a digital signal processing chip. The standard configuration includes 8 Mb of memory expandable in increments of 4 Mb to 16 Mb on the motherboard. For mass storage, the system has a "magneto-optical" disk drive whose removable cartridges can store up to 256 Mb. A SCSI device controller and Ethernet hardware are also standard. SCSI hard disks of various sizes can be added.

The mother board supports NuBus expansion slots and has numerous ports including a monitor port, a serial printer port, an Ethernet connector, a SCSI connector, two general purpose serial ports, and port for the digital signal processor. In addition, the monitor has connectors for headphones, left and right stereo channels, and microphone input.

The NeXT display is a 17-inch black and white monitor with an 1120 by 832 pixel display. Connected to the monitor are a two-button mouse and a modestly sized keyboard.

Software

The system software is no less sophisticated than the hardware on which it runs. On the surface, the Mach operating system looks very much like Berkeley UNIX, and indeed, moving applications from Berkeley UNIX to Mach should be relatively easy. Mach internals, however, are another matter altogether. Mach allows single processes or "tasks" to be multi-threaded. Ordinary UNIX processes are single-threaded: they execute one instruction at a time in a single sequence. Multi-threading allows various components of a process to execute simultaneously. The success of multi-threading depends on the operating system's facilities for communication between processes and between the threads of a single process. In Mach inter-process communication is handled by passing messages over a port or queue that is a component of each thread.

The NeXT system includes a Window Server that manages the display on the workstation's console. The Window Server operates along the same lines as X Windows or NeWS: a server process directs traffic, collecting user input and passing it to the relevant application program. Programs in turn send back to the server instructions (using Adobe Systems' Display PostScript) for display output.

For developers, the NeXT system includes a C compiler and "Objective-C", a C pre-processor that enables C programmers to take advantage of object-oriented programming techniques. Also provided are a number of "kits" that give the developer an interface to various features of the NeXT system. The Application Kit, for example, is used to construct programs that use NeXT's Window Server. There are also kits providing access to the machine's audio facilities.

And of course there are applications. In addition to a word processor, enhanced electronic mail, a program for graphic design, and modeling, there is a very nice text retrieval system that can be used to browse reference works, the works of Shakespeare, or the system documentation.

The NeXT system is certainly feature-laden. There is almost nothing the machine has not been equipped to do. The only open question is how well it performs, and even though the Mach operating system differs from UNIX in many ways, Mach's compatibility with 4.3 BSD is more than adequate to run benchmark programs commonly used on UNIX systems. The UNIX benchmarks should provide a rough idea of how the NeXT hardware compares with other computers that run UNIX.

Benchmarking The NeXT

The NeXT computer used in the tests was configured with a 25 MHz 68030 CPU with a 68882 floating point processor and 12 Mb RAM, and it ran a preliminary version of the Mach operating system (Version 0.9). The tests used here are a modified version of the benchmarks first published by David Hinnant in his article "Benchmarking UNIX Systems", *BYTE* (August, 1984). The tests measure performance for CPU intensive activity, disk access, multi-user activity, and repeated program compilation.

The NeXT's results appear in Tables 1–4 along with the figures obtained from running the same tests on three other machines: a Compaq 386 (16 MHz 80386, 2 Mb Memory, and 8 MHz 80287 co-processor) running SCO's XENIX, a Sun Microsystems 3/50 (16 MHz 68020, 4 Mb) running SunOS 3.2, and an Apple Macintosh II (16 MHz. 68020, 8 Mb) running A/UX 1.0. The Compaq and Sun machines were benchmarked in 1987, and represent an earlier, less powerful generation of workstation. (Indeed, in 1987 the Sun 3/50 was well on its way to being "old" technology.) The Macintosh II was tested in 1988. The overall slowness of the Mac II is attributable to the slow SCSI disk used for A/UX. Comparing the NeXT's results with the 1987 benchmarks gives a reasonable indication of how workstation hardware has advanced in the last two years. Apple, Sun, and Compaq have current models whose configurations more closely match that of the NeXT computer.

On each computer, the test suite was run ten times. The figures in Tables 1–4 are averages for each test over ten repetitions. The figures labeled "Real" represent clock time or elapsed time for each test; "User" and "System" time are measurements of the time spent by the CPU running user instructions and privileged system calls, respectively. The total CPU time is the sum of "User" time and "System" time.

The NeXT computer delivers extraordinary CPU performance. Running at 25 MHz with a supporting math processor, it was expected to post better times than the others tested. However, NeXT completed the "sieve" and "loop" benchmarks in less than one-third the time required by the Compaq, and this is an advantage that could not have been predicted

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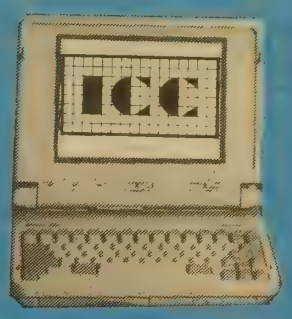

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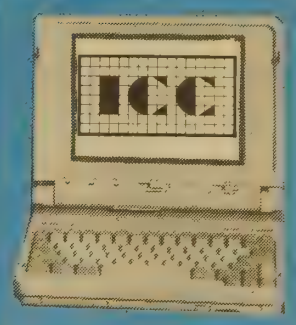

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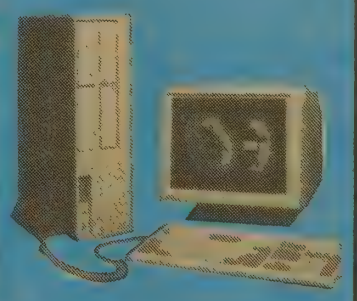

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from a simple comparison of the hardware specifications. NeXT's performance on the system call test is about what was expected. The function call overhead on the NeXT is very low, and the "assignment" test was completed so quickly that the UNIX "time" command was unable to measure it.

NeXT's performance on disk intensive tests was also very good. (The disk tests used a SCSI hard disk and not the slower optical drive.) It posted better times than the older Compaq on both disk read and disk write. It was slower than the Compaq on the "pipe" test.

The results of the multi-user tests show the NeXT running extremely well with a light load and degrading slightly with each additional user. NeXT's multi-user performance is clearly better than either of the 68020 based machines tested. The excellent results obtained from the Compaq/XENIX combination (on both the multi-user test and the compiling test described below) illustrate how much operating system efficiency contributes to performance.

The NeXT performed extremely well compiling the benchmark programs. This test measures how long it takes to compile the other test programs, none of which is very large. Typically, NeXT completed the compilations in less than half the time required by the older Sun.

The benchmarks show the NeXT machine to be a very powerful computer. That power coupled with its elaborate list of features may well mean that the first "jack-of-all-trades" workstation will be one of the best. ■

Table 1: CPU Intensive Tests:

	Compaq 386	Sun 3/50	Apple Mac II	NeXT
Executing sieve				
100 iterations 1899 primes				
Real	11.3	14.16	11.61	3.4
User	11.1	13.19	11.3	3.24
System	0.05	0.05	0.01	0.04
System Call				
Real	2.45	3.73	3.26	1.95
User	0.26	0.69	0.06	0.14
System	2.08	2.8	3.07	1.75
Loop Test				
Real	2.06	2.15	1.96	0.6
User	1.9	1.94	1.7	0.5
System	0.03	0.01	0	0
Function Call Overhead				
Function Call				
Real	0.35	0.4	0.42	0.11
User	0.2	0.28	0.3	0.1
System	0	0.01	0	0
Assignment				
Real	0.19	0.13	0.13	0
User	0	0	0	0
System	0	0.02	0	0
Overhead	0.16	0.27	0.29	0.11

Table 2: Disk Intensive Tests

	Compaq 386	Sun 3/50	Apple Mac II	NeXT
Disk Write				
Real	0.44	1.66	1.57	0.36
User	0	0	0	0
System	0.28	0.54	0.3	0.2
Disk Read				
Real	0.44	1.62	3.04	0.41
User	0	0	0	0
System	0.26	0.47	0.45	0.35
Pipe Test				
Real	1.41	3.55	2.18	1.49
User	0	0	0	0
System	0.6	1.65	0.96	0.69

Table 3: Multi-User Tests

	Compaq 386	Sun 3/50	Apple Mac II	NeXT
Shell (one user)				
Real	2.2	4.15	5.32	1.79
User	0.07	0.11	0.04	0.01
System	0.68	1.01	0.41	0.7
Shell (two users)				
Real	2.12	5.26	4.62	3.3
User	0.13	0.25	0.16	0.12
System	1.23	1.92	1.06	1.4
Shell (three users)				
Real	3.34	8.54	6.46	5.12
User	0.17	0.34	0.25	0.14
System	1.83	2.83	1.67	2.14
Shell (four users)				
Real	4.34	9.51	8.18	6.88
User	0.3	0.45	0.31	0.23
System	2.4	4	2.22	2.84
Shell (five users)				
Real	5.04	12.68	10.03	8.61
User	0.37	0.65	0.44	0.32
System	3.01	5.24	2.85	3.48
Shell (six users)				
Real	5.93	14.97	12.21	10.34
User	0.45	0.75	0.47	0.4
System	3.57	6.69	3.4	4.27

Table 4: Compiling the Test Programs

	Compaq 386	Sun 3/50	Apple Mac II	NeXT
Compiling dwrite.c				
Real	7.62	8.29	23.25	3.33
User	1.24	1.41	1.39	1.32
System	2.25	1.55	1.42	1.01
Compiling dread.c				
Real	3.3	7.35	24.01	3.3
User	1.29	1.51	1.55	1.37
System	1.17	1.49	1.45	1.01
Compiling fcalle.c				
Real	2.67	6.93	20.35	2.56
User	0.7	1.03	0.68	0.87
System	1.14	1.39	1.07	0.91
Compiling fcalla.c				
Real	2.54	5.93	19.77	2.53
User	0.68	0.92	0.5	0.79
System	1.08	1.34	0.95	0.93
Compiling loop.c				
Real	2.73	6.65	20.47	2.45
User	0.75	0.95	0.72	0.77
System	1.1	1.4	1.2	0.94
Compiling pipes.c				
Real	3.01	6.62	22.07	2.72
User	1.11	1.33	1.18	1.02
System	1.11	1.44	1.35	0.96
Compiling scall.c				
Real	2.63	5.73	19.88	2.44
User	0.67	0.92	0.48	0.8
System	1.07	1.34	1	0.97
Compiling sieve.c				
Real	3.1	6.74	22.04	2.66
User	1.18	1.43	1.59	0.99
System	1.09	1.45	1.35	0.94

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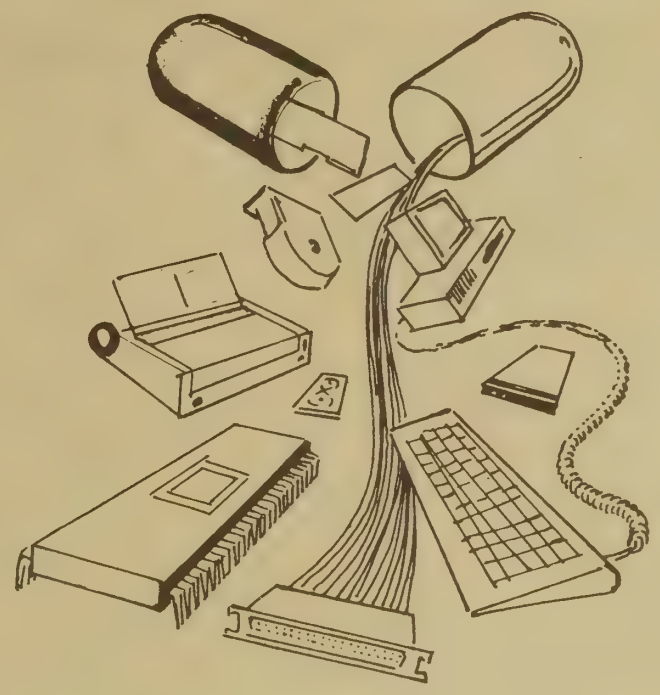

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LANs

BY WAYNE YACCO

LAN Basics Continued

Last month we began a tutorial with a discussion of the physical and logical aspects of network protocols. This month we'll take a more specific look at some of the protocols that follow the ISO-OSI model (figure 1) and also at some that don't. In addition, we'll discuss the evolution of LANs from their recent beginnings to the present and examine *NetWare 386* and its protocol engine.

Protocols

There are many protocols besides those used in AppleTalk and Novell's *NetWare*. Transmission Control Protocol/Internet Protocol (TCP/IP) and Xerox Network System (XNS) protocols both have features roughly analogous to the upper five levels of ISO-OSI but they employ alternative designs.

Both have protocols that cross and overlap the boundaries in the OSI model. TCP/IP is primarily concerned with the Transport and Network layers. XNS concentrates on Transport, Network, and Session layers. (The Transport protocol used by Novell, IPX, is a subset of XNS.)

Their parts do not have a one-to-one correspondence with ISO-OSI. For example, TCP/IP provides the equivalent of the model's Session, Presentation, and Application layers with its FTP and TELNET (File Transfer Protocol-TELNET) protocols.

Although not all protocols conform to it, ISO-OSI remains a useful framework for discussing protocols because real protocols do provide the same services. Therefore, layers in the model work to describe other standards.

The Institute of Electrical and Electronic Engineers (IEEE) has a standard, 802, which corresponds, in part, to the Physical and Data Link protocols. IEEE 802.3, for example, is the accepted standard for the bus topology and Carrier Sense Multiple Access with Collision Detection (CSMA/CD) access method used by Ethernet. The 802.5 specification is the Token Ring (read: IBM) standard .

The IBM standard, which corresponds to the Network layer, is its System Network Architecture (SNA). Within SNA are parts that, although organized differently, perform the services of the OSI model. Advanced Program-to-Program Communications (APPC) is roughly analogous to the OSI Session layer and is implemented in session products like APPC/PC and LU 6.2.

NetBIOS (Network Basic Input/Output System) is primarily a session protocol with some features of the Transport and Presentation layers that were developed for IBM's PC LAN. Many application programs use the NetBIOS session protocol to communicate across the network with an operating system, other applications, or other parts of the same application (say a database server). So other networks often provide the ability to service NetBIOS calls (e.g., through emulation) for these applications, and are described as NetBIOS compatible.

There are other basic elements in addition to those we've used in describing the ISO/OSI model. Two of the most common are Bridges and Gateways. Bridges connect LANs. They allow the nodes of one LAN to access the nodes and resources of another. Gateways connect dissimilar networks. A gateway may be necessary to connect a LAN to a TCP/IP network. They are used to provide access to the networks of major information services.

NetWare 386

LANs began as a means for users to share resources, such as expensive disk drives and printers. The next generation provided file sharing and multiuser support. The current generation adds the ability to perform distributed processing. Distributed processing allows nodes to share work loads.

The next generation, which is beginning to appear on PCs, also provides database servers that interpret and execute query instructions at the server and send only the desired information to the node making the request. Until now, LANs have used file servers that send all of the records in a database and require the node to apply selection criteria locally. The database server can thus reduce network traffic drastically.

In both the file-server and database-server examples, a workstation requests services from a server that manages a resource such as a file system or database. Each is an implementation of the client-server model.

The PC-based platform that will support much of the network traffic in the near future will be *NetWare 386*. Novell plans to release versions of this software beginning in the third quarter of 1989.

NetWare 386 requires an 80386-based PC and is designed to take advantage of the chip's design. For large networks, it will run from two to three times faster than previous versions of the software. But speed is only one of the benefits it will bring.

Installing a network can be an onerous task. Many resource-allocation parameters must be specified. And until the network is running, it is difficult to know how much memory, for example, is required by each server process. *Netware 386* handles memory allocation dynamically, based on need and available memory, moving resources from server processes to cache buffers or open files as required for optimal performance. Novell claims that this LAN will have a 15-minute installation time!

Netware 386 even allows new features to be added to the network without interrupting ongoing processes. LAN and disk drivers, protocol stacks, and server utilities can be dynamically loaded or unloaded without disturbing the network or any running sessions.

With the initial delivery of Version 3.1 scheduled for the first quarter of 1990, Novell will begin implementing its Open Protocol Technology (OPT). OPT is another major advancement of *NetWare 386* and part of a protocol engine that will manage different protocols. It will allow *Netware 386* to provide communication among a large number of common protocols and dynamically manage most widely used protocols, loading stacks as required.

Many hardware and software platforms will be able to attach to *NetWare 386* LANs. Nodes will be able to operate under a variety of client-server protocols including DOS and NetWare Core Protocols (NCP), OS/2 and the Server Message Block (SMB), the Macintosh operating system and AppleTalk Filing Protocol (AFP), and UNIX with the Network File System (NFS). Interprocess Communications (IPC), or Session, protocols including SPX, NetBIOS, Named Pipes, Transport Level Interface (TLI), Berkeley Sockets, and APPC are supported. So are multiple Transport protocols such as IPX, NetBEUI, AppleTalk, TCP/IP, SNA, and OSI. Supported LAN interface boards will include Ethernet, Token-Ring, LocalTalk, ARCNET, SDLC, T1, and Asynchronous.

The new version of NetWare incorporates the set of Streams Unix calls, an implementation based on AT&T UNIX System V release 3. Streams is a development-support library for writing protocol stacks; it allows *NetWare 386* and its third-party developers to easily manage different protocol stacks.

NetWare 386 will also have in its protocol engine the Open Data-Link Interface, which will manage communication with the different interface cards and associated drivers of various physical layers.

Netware 386 will raise the maximum number of simultaneous users from 100 to 250 per network. It will support up to 32 terabytes (that's 32 followed by enough zeros to lead an attack on Pearl Harbor) of disk storage, up to 100,000 concurrently open files, 25,000 concurrent transactions, four gigabytes of RAM, and files as large as four gigabytes. In addition, the software can sense the presence of an i486 chip and use i486-specific instructions.

If Novell delivers what it has promised, this should be an impressive piece of work.■

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Figure 1
ISO-OSI Model

Application
Presentation
Session
Transport
Network
Data Link
Physical

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USER GROUP NETWORK

BY MARY EISENHART

West LA And Beyond

Well, as LA approaches the Dog Days, the local user groups and BBSers just seem to get busier. Once again, the mailbox is bulging with faxes, email, and yes, the occasional letter and postcard.

Dave Harrison lets his fax do the talking, and tells us that the **Westside Computer Users And BBSers Group** is thriving out in West LA. This group, which welcomes all computer and BBS enthusiasts regardless of machine or software preference, meets on the last Saturday of the month. Meetings, which at least until November will be taking place at Flakey Jake's Restaurant, 2347 S. Sepulveda at Pico in West LA, start at 6:30 pm. If you'd like more information, Dave invites you to give him a call at (213)857-5800.

John Calhoun is the president of the **C128 West Commodore** user group that supports the C128 and 128D in native 128 and CP/M modes only. He tells us that the group meets in the non-summer months at the McKinley School Auditorium, Santa Monica Boulevard at Chelsia, at 7 pm on second Tuesdays.

But, you say, it's summer now. Well, for the location and time of the summer meetings, give John a call at (818)331-1589.

Also on the west side of town, **Eric Salazar** invites Atari enthusiasts to check out the **West LA Atari Users Group** that meets on the first and third Wednesdays of the month at Federated in Santa Monica, 11820 W. Olympic Boulevard, between Bundy and Barrington. For more information on the group and its activities, call **Bill** at (213)559-2349.

From considerably west of West LA (or east, depending on your point of view), we received a fax from **Pete Perkins**, the director of M.R.T. Inc., which appears to be a dealer/VAR in Tokyo. Pete operates the **Janis II BBS** at (03)255-8856, 1200/2400/9600HST, 24 hours a day. In addition to several online magazines, movie reviews, and online shopping, the board offers networked mail and over 500 Mb of information and programs for download. There's no fee for using this board (other than what your long-distance carrier charges you), but registration is required. So if you're going to be going to Japan soon, or just want to talk to folks in a different part of the world, check out Janis II.

Not a free BBS, but probably a valuable resource if you're in the entertainment or communications industries: the **Media Access Information Network**, (818)769-8577, 300/1200/2400, 8-N-1, 24 hours. It includes easy-to-use, menu-driven databases on a variety of topics, including agents, advertising agencies, theatre, radio and TV broadcasting, and more. There are databases for all 50 states as well as for 30 foreign countries, plus reviews, employment exchange, info on projects currently in production, and much more.

Services are available at a variety of prices and levels, but Media Access is currently offering a ten-day free trial. If you need more information or if you'd like to talk to a human being about all this, give Media Access a call at (818)769-0613.

The discussion-minded might want to check out **Bill Greenland's Open Mind BBS** at (818)342-4601. Its distinguishing characteristic, according to Bill: "Current and topical discussions that put others to shame."

Granted, Capitola isn't exactly in Southern California, but I've encountered a few people in the Southland who take a lively interest in robotics, so this might be of interest: **James P. Cruse** of Capitola writes in about **Home Robots Now!**, which, he says, is "a group dedicated to getting robots working in the house NOW!"

As for what the group does, well, here's what James has to say: "We have been meeting for almost two years now, and are currently building an autonomous robot for navigating in a house. We are currently meeting the second Thursday of every month, and are looking for people interested in the hardware or software aspects of robotics." To find out more about Home Robots Now!, call James at (408)475-7444, or write him at 919 Capitola Avenue, Suite 41, Capitola, CA 95010.

That's it for now—please keep that information flowing in our direction and we'll do our best to pass it along. US Mail goes to User Group Network, 5951 Canning Street, Oakland, CA 94609. Email can be sent to **microx** on The WELL (415/332-6106), **{pacbell, hplabs,ucbvax, apple}!well!microx** from Usenet, **MICROTIMES** on MacNET, and **bex754** on The Source (yes, we know CompuServe just acquired The Source, and when we get our new ID we'll be sure to let you know). Faxes are also welcome: (415)652-4618 and (213)467-5486. ■

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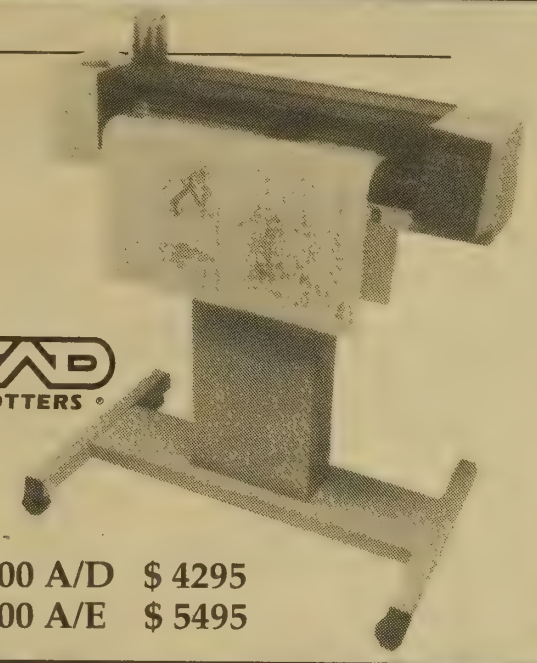

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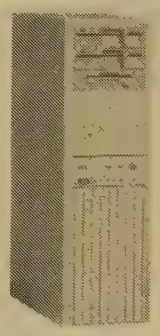

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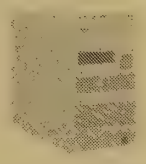

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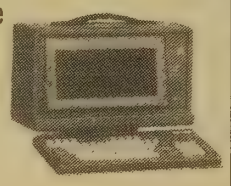

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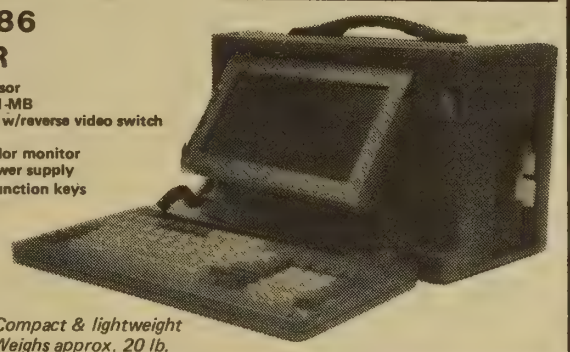

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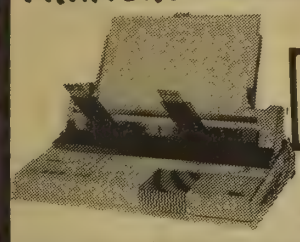

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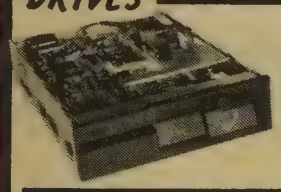

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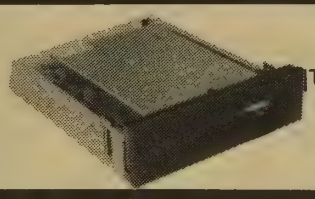

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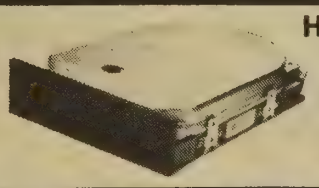

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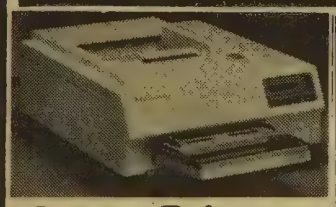

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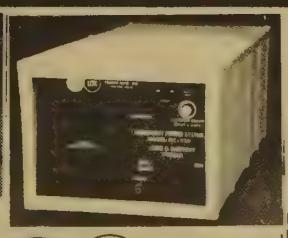

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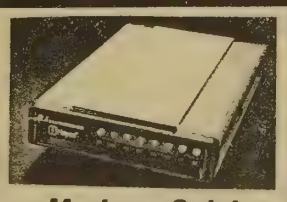

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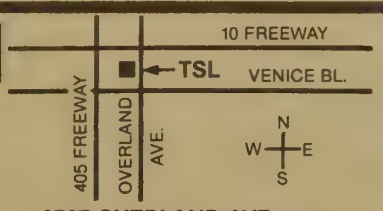

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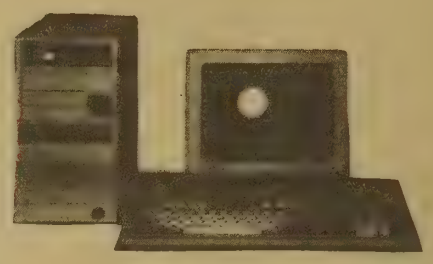

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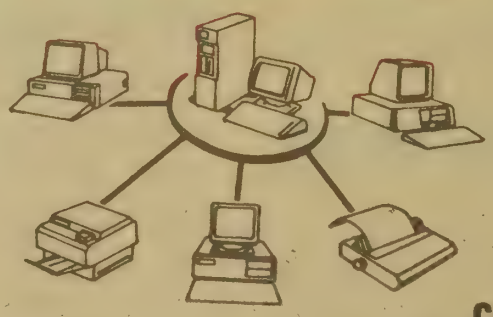

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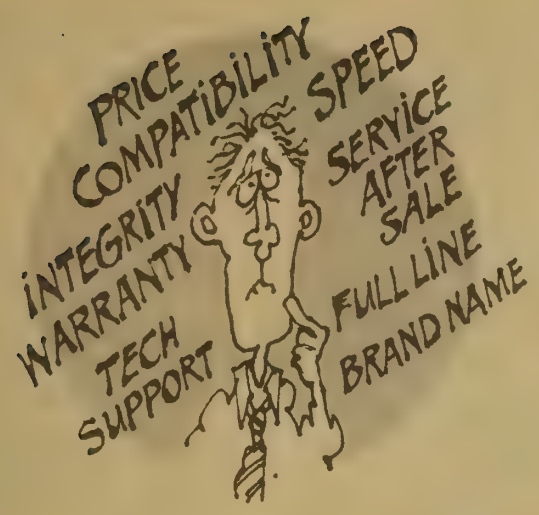

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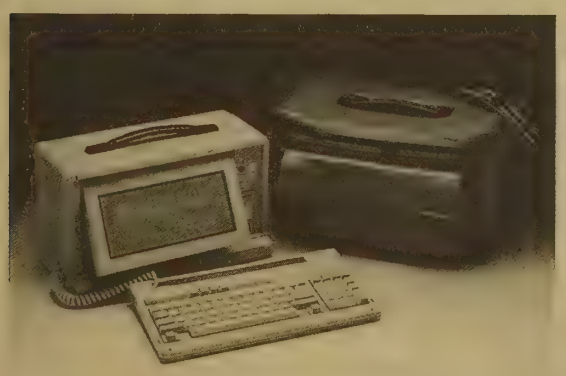

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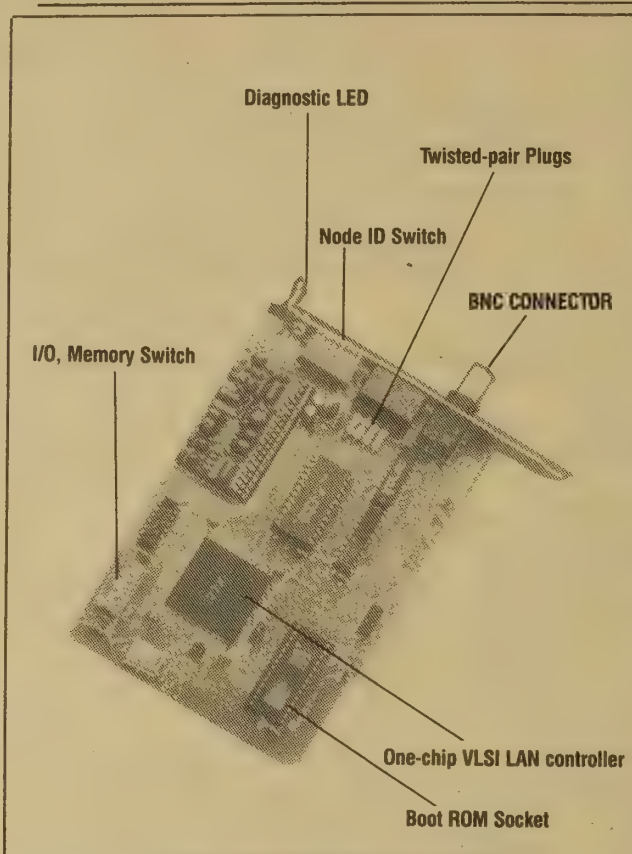

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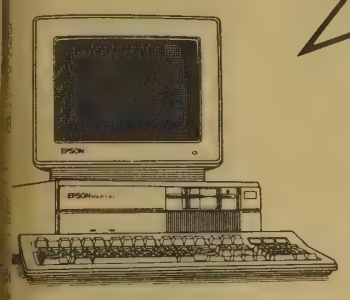

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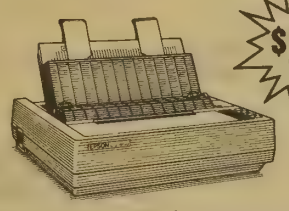

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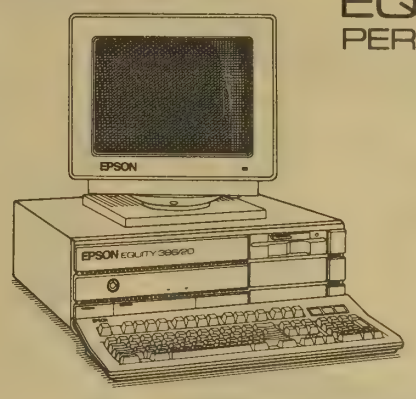

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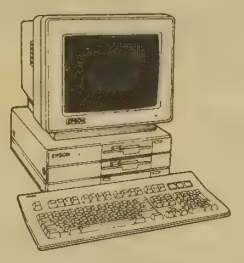

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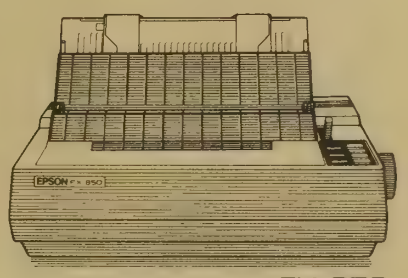

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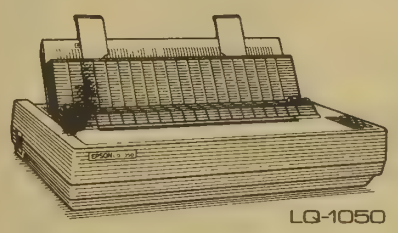

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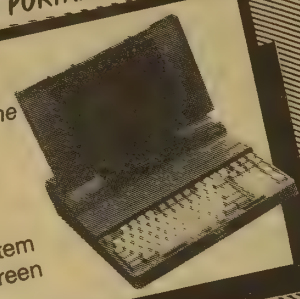

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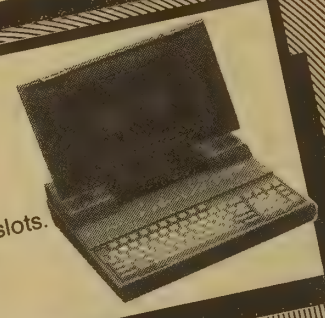

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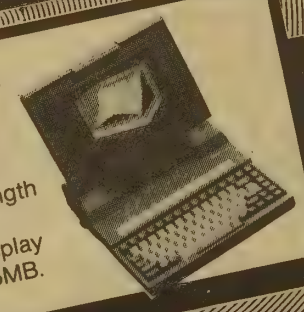

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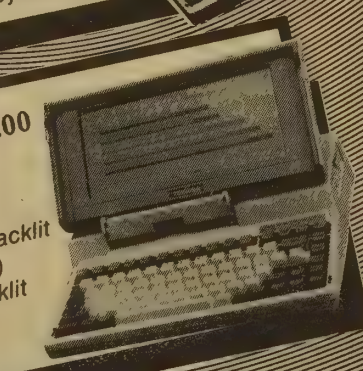

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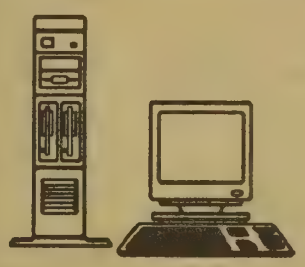

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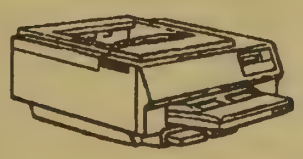

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Night-line Network Central. (916)427-1107, 300/1200, 8:00 PM to 8:00 AM daily. Forum for individuals, clubs and organizations that want to network nationally with others. Sysop: Eric Thomas.

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ASSOCIATIONS

ACCPAC Accounting SIG. Meetings: 2nd Wednesdays at 7 pm. Users, CPAs, consultants, and other business people interested in sharing information on Computer Associates' ACCPAC Accounting software. Call Donna Miller, (213)393-0244.

California Educational Computing Consortium (CCCE). For information, write Herb Garrett, Long Beach City College, 4901 E. Carson ST., Long Beach, CA 90808.

Computer Professionals for Social Responsibility. Meetings: Most third Wednesdays, 7:30 pm, UCLA. CPSR/LS focuses on computer system risk and reliability and on privacy and civil liberties issues.

International Blind Users Group (I-BUG). Part of the National Association of Blind and Visually Impaired Computer Users. Membership consists of access to CompuHelp, a 24 hour online database/bulletin board system, and receiving CompuHelp On-Disk, a modem database bulletin board system on two double-sided disks. Call: (916)783-0364 or 645-8036.

LA Real-Time Problem Solvers. Meetings: 4th Saturdays, 10 am to 1 pm, Hawthorne Public Library, 12700 S Greviellea Ave., Hawthorne. We speak A/D, SBC, RISC, FORTH, and C. We support real-time, real-world hardware and software problem solving, such as firmware, device drivers, instrumentation and very smart toasters. Call: (213)371-0589.

National Account-A-Call Users Group (AACNUG). Meetings: First one held in June. Call: Shelly Schoenberger, 1-800-447-TUMS.

North Orange County Computer Club (NOCCC). Meetings: Monthly on Sundays, Chapman College near downtown Orange. Help for beginners, SIGs, educational activities, monthly newsletter. Open to any computer user. Call: (714)998-8080.

Realtor Microcomputer UG (RUG). Meetings: 4th Thursdays, 7 pm, Pasadena BOR, corner of Orange Grove and Los Robles, Pasadena, CA.

Westside Computer Users and BBSers Group. Meetings: Last Saturdays, 6:30 pm, Flakey Jake's restaurant, 2347 S. Sepulgda Blvd. @ Pico. Call: Dave Harrison, (213) 857-5800.

USER GROUPS

AMIGA

Amiga Friends. Meetings: 3rd Sun. Rancho Santiago College, Rm R-124, 17th & Bristol, Santa Ana. Call for current meeting info: (714)775-7237 (24 hrs.)or write: P.O. Box 4186, Huntington Beach, CA 92605.

Amiga Special Interest Group. Meetings: 1st Sunday except holidays. Chapman College, 333 N. Glassell, Orange, CA. Amiga SIG is part of the North Orange County Computer Club, a thousand member organization together 12 years.

Amiga User's Group Of Long Beach. Meetings: 3rd Sundays, 1 pm, Mid-Cities National Bank, Lakewood and Artesia, Bellflower. Tech, Beginners, Video/ Graphics sigs. (213)422-8226/ 432-2088.

Bits & Pieces Amiga Group of Anaheim. Meetings: each Tues. 6:30-10 PM 1130-A North Kraemer Blvd., Anaheim, CA. DOS Classes, tech. help & more. BBS: (714)630-8897.

LAAUG-Los Angeles Amiga Users Group. Meeting: 3rd Wednesdays @ 7:30 PM. Veteran's Auditorium at Overland Ave. & Culver Blvd. Many SIGs, Rookie, music, video, monthly PD disks.

Pacific Computer Club. Meetings: 2nd Thurs. 7 PM 391 S. Madison, Pasadena, CA.

San Fernando Valley Amiga Users Group (SFVAUG). Meetings: last Tuesdays 7 pm, The Meeting Place, 6507 Fallbrook Ave, Canoga Park. Call: Randy, (818)719-9211.

South Bay Amiga Dudes. Meetings: 3rd Thursdays, 7 pm, Redondo Beach Blvd., Lawndale. Call: Charlie Breene at (213)540-2834.

South Orange Commodore Klub (SOCK). Meetings: 3rd Saturday 9:00 A.M. Union Savings, 23688 El Toro Road, El Toro, CA. For Commodore 64/ 128 users and Amiga users. One-hour general meeting is followed by separate group meetings for each.

AMSTRAD

Amstrad Users Club Of Orange County. Meetings: 3rd Saturdays, 10 am til 2 pm. Board Room upstairs in the Santa Ana Library, Civic Center & Ross Streets. For more information call: (714)953-6471.

Amstrad Users Group, USA. Meetings: Free mail and phone support for PCW. 12741 Matteson Ave. #3 LA 90066. (213)397-7981.

APPLE

Apple/Valley Computer Club. Meetings: 2nd Wednesdays, 7:30 pm, Valley Presbyterian Hospital, meeting room #3. Discussion on Apple, Mac, Amiga, IBM. BBS: (818)782-6471. Up loading/down loading. Visitors welcome. Eamon games, misc. Voice: (818)988-1752.

Original Apple Corps. Meetings: 2nd Sun. 12:00 Noon 3rd Floor Community Room, Santa Monica Mall. First Apple group ever. SIGs for AppleWorks, Telecomm, Educators, Macintosh. Call Fred Duffy at (213)396-5515.

Tri-City Apple Users Group. Meetings: 3rd Thurs., 7:00 PM, 50 N. Hill Ave., Pasedena. Call (818)846-6682. Friendly Apple II experts.

ATARI

Atari Computer Association Of Orange County. Meetings: 2nd Sun. Rancho Santiago College, Room W101, Santa Ana. BBS: (714)540-7378.

North Orange County Computer Club Atari ST SIG. Meetings: First Sundays, Chapman College in Orange. (714)552-5185, or Bill, 633-4665, or Mac, 751-3090.

Santa Clara Valley Atari Computer Enthusiasts (SCVACE). Meetings: 1st Thurs. 7PM Mint Canyon Moose Lodge, 18000 W. Sierra Hwy, Canyon County. 8-bit group. Atari ST special group now forming.

South Bay Atari Computer Enthusiasts (SBACE). Meetings: 2nd Tuesdays, 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd., Call: Alan, (213)542-7870.

West LA Atari Users Group. Meetings: 1st & 3rd Wednesdays, 7:30 pm, The Federated Group store, Santa Monica. Call: Bill, (213)559-2349.

CLIPPER

Fresno Clipper User Group. Meeting: 4th Thursdays, 7:00 pm. Call: John Rogers, (209)251-7527.

Los Angeles Clipper User Group. Meeting: 4th Wednesdays, 7:30 pm. Call: Theresa Padilla, (213)452-0370.

Orange County Clipper User Group. Meeting: 4th Thursdays, 7:00 pm. Call: Steve Hilton, (714)847-7123.

San Diego Clipper User Group. Meeting: 4th Tuesdays, 7:30 pm. Call: Mick Keily, (619)569-8234.

Valley Clipper User Group. 7:30 pm. Call: Igor Lelchitsky, (818)716-8790.

COMMODORE

Bits & Pieces Commodore Computer Group of Anaheim. Meetings: each Tues 6:30 PM 1130-A N. Kraemer Blvd. (Kraemer & La Palma), Anaheim. Offers public domain software, demonstrations, interactive training on your computer. $33 annual dues.

Commodore 64 Software Users Group. For new Commodore owners. One on one help. Call (714)531-2977 for info.

Commodore Helpers Of Long Beach. Meeting: 2nd Saturdays 9 am, Mercury Savings And Loan, 4140 Long Beach Blvd. Long Beach C-64 & C-128. Call: (213)424-0508.

C–128 West Commodore User Group. Meetings: 2nd Tuesdays, 7 pm, McKinley School auditorium, Santa Monica Blvd. (except during summer). Call: 6–9 pm, John Calhoun, (818)331-1589.

Mother Lode Commodore Users Group. Meetings: 2nd & 3rd Thursdays. Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4, C-16

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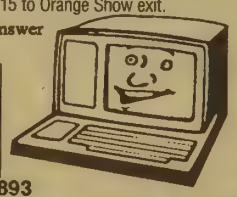

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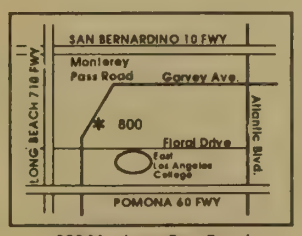

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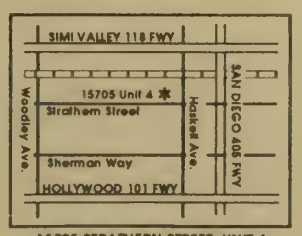

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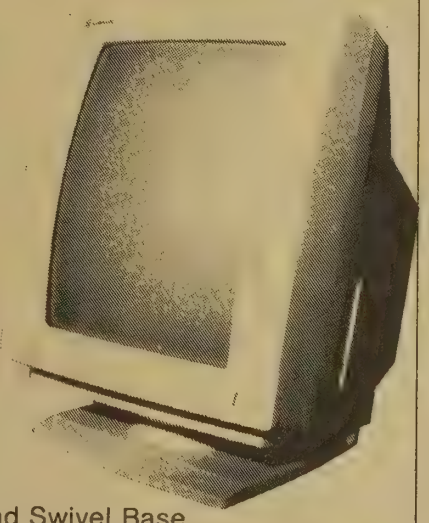

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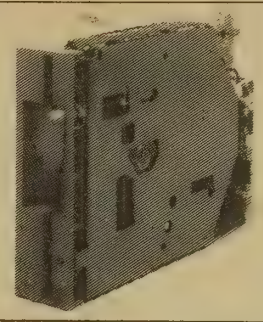

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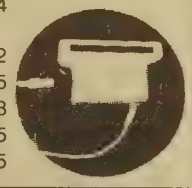

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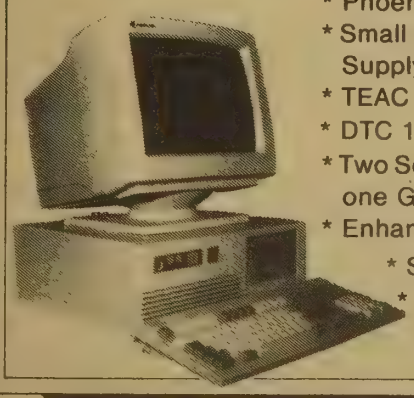

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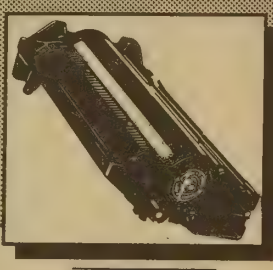

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Orange County Commodore Technical Users Group (C-TUG). Meetings: 4th Sun. 11:00 AM, 4th & Tustin, P.O. 1497, Costa Mesa, CA 92628. Newsletter; 2 BBS's; door prizes; demos, raffles, speakers, (714)750-3003.

Pacific Computer Club. Meetings: 2nd Thurs. 7 PM 391 S. Madison, Pasadena, CA.

Pasadena Commodore Computer Club. Meetings: 1st and 3rd Weds. 7:00 PM Circadian Room, Pasadena City College Cafeteria. Colorado Blvd & Hill, Pasadena. Call (818)447-2212 after 2:30 PST or write P.O. Box 163, Arcadia, CA 91006. Supports C64 and 128 machines.

South Bay Commodore Users' Group. Meetings: 4th Tuesdays, 7:00 pm, Home Federal Savings Conference Room, 1670 Pacific Coast Highway, Redondo Beach.

South California Commodore Users Group. Meetings: 3rd Tuesday each month, 7:00 P.M., MidCities National Bank, Lakewood and Artesia Blvds., Bellflower, CA.

South Orange Commodore Klub (SOCK). Meetings: 1st Wed. 7 PM Laventhol & Horwath, Exec. Conf. Rm.7th Fl., 3699 Wilshire Blvd., LA, CA.

The Orange County Commodore Club. Meeting: 4th Saturdays, 11:00 am, Mercury Savings And Loan, Mercury Room, 7812 Edinger Ave., Huntington Beach, Call: Mike Moore at (714)968-6250, or Howard Phillips at (213)861-4165.

dBASE

UCLA PCUG dBASE SIG. Meetings: 3rd Wednesdays, 7:30 pm. Call: (213)874-7471.

Valley West dBASE Users Group. Meetings: 3rd Mon. 7:00 PM Blue Cross Of California, 21555 Oxnard St., Woodland Hills. Call (818)789-0723 or write P.O. Box 16971, Encino, CA 91416.

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DECUS Rainbow Pacific PC-LUG. Meetings: 2nd Wed. 7:00 PM Digital Equipment Corporation, 6101 W. Centinela, Ave., Culver City. Digital Equipment Computer Users Society. Free to DEC users. Call Karen Danforth (818)787-8736 or write P.O. Box 2278, Van Nuys, CA 91404.

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VICUG–DTP. (Valley IBM/Compatibles Users Group). Meetings: 2nd Fridays, 7:30–10:00 pm. Valley Plaza Recreation Center, 12240 Archwood St., North Hollywood, CA. Call: Harry Tischler, (818)997-6000.

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San Fernando Valley and Los Angeles Epson QX User Group. Meetings: 3rd Tues. 7 PM 6025 El Escorpion Rd., Woodland Hills. Call: (818)349-7417.

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Long Beach IBM Users Group. Meetings: 3rd Tuesdays. 7 PM, Woodruff Medical Plaza, 3816 Woodruff Ave., Room A, Long Beach. Contact: Jim Wells. Call: (213)439-7114.

Mid-Wilshire PC User Group. Meeting: 2nd Thursdays, Conference Room of Forty Plus, 3450 Wilshire Boulevard, Suite 510, Los Angeles. Call: Robert, (818)790-5884.

OKOK Computer Users Group. Meetings: 2nd Wed. 7-9 PM Altadena Public Library, 600 E. Mariposa. Call (818)794-3243. Serves, Osborne, Kaypro, Commodore C128, PCs and compatibles and both MS-DOS and C/PM operating systems.

Orange Coast IBM PC User Group. Meetings: last Sat. 9 AM Science Hall, Orange Coast College, Costa Mesa, CA.

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South Bay Users Group (SBUG). Meetings: 1st Sun. Mercury Savings, Long Beach, CA.

South County PC Users Group. Meetings: 3rd Sat. 9 AM Great American Savings, 23688 El Toro Rd., El Toro, CA.

Technical Users Group (TUG-NET). Meetings: Call for info (818)882-6045. BBS (818)882-6045.

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The Southern California K-Man Users Group. Meetings: 1st Wednesday, 7:00 P.M., Laventhol and Horwath, Executive Conference Room, 7th Floor, 3699 Wilshire Blvd., LA. Demo of the month features new software and hardware.

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VICUG (Valley IBM/Compatible Users Group). Meetings: 4th Fridays, 7:30 pm, Mercury Savings Bank, 14801 Ventura Blvd., Sherman Oaks. Call: Harry Tischler, (818)997-6000.

VICUG–DTP (Valley IBM/Compatibles Users Group). Meetings: 7:30–10:00 pm, Valley Plaza Recreation Center, 12240 Archwood St., North Hollywood, CA. Call: Harry Tischler, (818)997-6000.

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LAMG (Los Angeles Macintosh Group). Meetings: Call (213)278-LAMG or write 12021 Wilshire Blvd. #349, Los Angeles, CA 90025.

MacValley. Meetings: 3rd Tues. 7:30 PM Burbank High School Cafeteria at Burbank Blvd. and Third St. Call David Lagerson, (818)998-5546or write P.O. Box 4279, Burbank, CA 91503.

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Whittier Area Mac Users Group. Meetings: 2nd Saturdays, 10 am, Granada Heights Friends Church, 11818 S. La Mirada Blvd., Rm. C-21. (213)947-2447.

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TI Users Group of Orange County. Meetings: 3rd Thurs. Peek Funeral Home, 7801 Bolsa Ave., Westminister. Call 633-7317.

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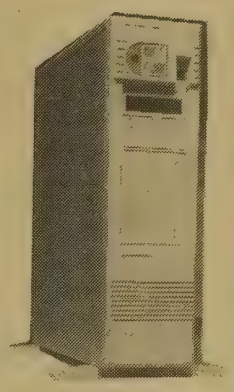

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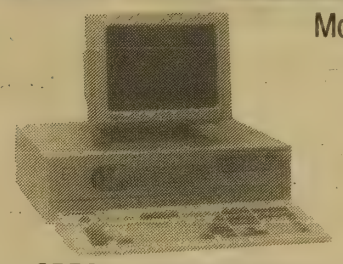

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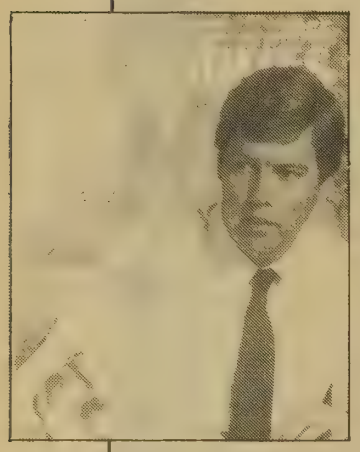

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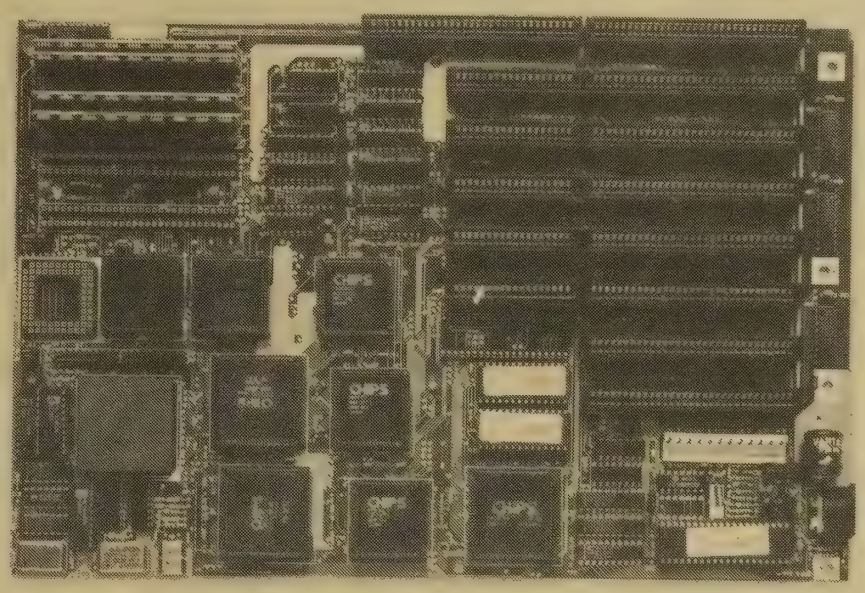

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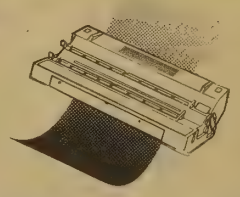

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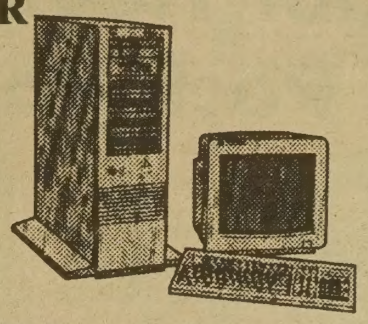

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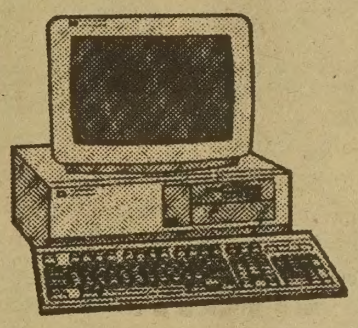

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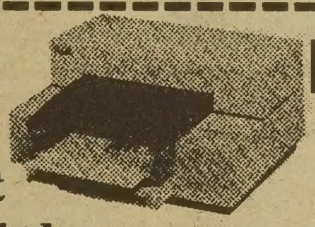

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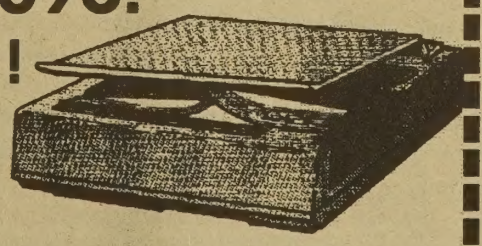

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Caution: Databases Can Be Harmful To Your Health (And Pocketbook!)

I wanted to check out the new Computer Library section on CompuServe. You can access it through PC Magnet, the reader feedback special interest group (SIG) for *PC Magazine* (type go pcmagnet at the "!" prompt). In the Computer Library section there is a full-text information retrieval system called the Computer Database. In it is almost everything found in *PC Magazine*, *PC Week*, *Computerworld*, all the IEEE publications, *Information Week*, you name it. Just about everything written in the field of computers is there, either abstracted or complete.

The great thing is that, if you don't mind spending $25 an hour, you can do wacky key word searches throughout the entire text of the hundreds of magazines. This is what I did yesterday.

I wanted to get my feet wet so I started by checking "by company name," instead of full text searches. I tried "MicroTimes" and "BAM Publishing" to no avail. Then decided to try IBM. There were 74 stories specifically about IBM. One group that caught my eye were 17 stories about IBM Japan. In particular one whose subject was technical innovations. So I wasted $1.50 downloading a *Computerworld*, Sept. 12, 1988, article titled, "Japan firm to sell AI tool know-how," written by Lori Valigra. The abstract said: "Sumitomo Metal Industries and IBM Japan have co-developed an expert system for controlling on-line computer networks under their Sparks project. The artificial intelligence-based (AI) method will increase the operation efficiency of networks by 60 percent." Etc., etc.

OK, now I knew you could be easily bored by this, but I typed in "Apple" to see what I got from the database. Wham, there were over 2500 articles. Two groups of them intrigued me so I looked them up. One was about Apple Japan and the other about Apple Mexico, an entity I'd never heard of.

There were five Apple Japan articles. The one from *MacWEEK*, Nov 8., 1988, was typical, "Yocam cleans Apple Japan house; new president will be Japanese." I yawned my way through these articles, including another Lori Whatshername *Computerworld* article talking about Apple's one-percent market share in Japan. Sneeze and it will blow away.

Anyway, I skipped to Apple Mexico and found a *Computer Reseller News* piece dated Aug. 3, 1987: "Apple considers exiting Mexico. (Apple Computer's Mexican operation falls short of revenue projections.)" Hmmmm, now this was getting interesting. According to a writer with the peculiar name of Nancy Trespasz, Apple has been losing $750,000 monthly and may shut down due to weird Mexican ownership requirements. So much for the graphical interface south of the border.

I figured this was boring so I went into full text search mode and looked up the word "dog." There were 26 articles with the word dog in them. Now *this* is interesting. It was stuff like the *PC Week* editorial entitled, "Is 1989 the year of the dog that didn't bark?" I figured I'd go for broke with these searches and input the word "Edsel" (don't ask me how this idea came to me). Wham, bam, to my amazement there were nine articles!

I had to see how anyone could slip the word Edsel into a story. One of the citations was from *PC Magazine*! Out of curiosity I paid the surcharge to find out how this happened and discovered a Jan. 26, 1988 Jon Matzkin review of *Addresselope*. His text said, "There is something unsatisfying about printing out a great-looking letter, then stuffing it into an envelope suffering from a sample of your poor penmanship. It's like hiding a Ferrari engine under an Edsel body." A simile!

Well, I then figured I would try to look up Kim Basinger. Why not? The database checked found nothing. I even tried Kim Bassinger. Nope. Boy, we talk about Edsels, but not Kim. Then I tried Marilyn Monroe. Four hits! Can you imagine? One reference was in a profile of Pyramid Technology done in *Electronic Business Magazine*. One was *PC Magazine* again. My curiosity got to me and I looked it up: *PC Magazine*, May 26, 1987. Not to my surprise it wasn't an article at all, but a Stephen Manes column. (Curiously, the database had Manes's name spelled "Stpehen.") His comments: "October 25, 1987: The estate of Marilyn Monroe sues rock star Madonna for wholesale appropriation of MM's original 'look and feel.' 'As the little copycat admits,' says the Monroe estate's spokeswoman, 'we are living in a material world.'"

I then got silly and tried Napoleon and Hitler and got nothing. Then eyeballing a nearby bottle of 1959 Chateau Lafite that was in a rack I decided to run the word "Bordeaux" and found five references. One of which was "*MacUser*, March, 1989, v5, n3, p295(4), *** Full-text article (4644 characters) *** Scrapbook. (column)"

So, believe it or not, I read the *MacUser* article to see how in the world they could possibly use the word Bordeaux, and was shocked to discover a reference to me. The reference to Bordeaux, however, had nothing to do with Bordeaux. I should read these magazines more closely! After all, I write for *MacUser*.

Listen to this, from a Kristi Coale column called the Scrapbook!

"Felix Dupont of Rockville, Md., recently set out on a quest of his own. He saw the Jasmine hard-disk drive ad on page 256 of our December '88 issue, and just had to have one. No, not the hard-disk drive, but the power briefcase that Guy Kawasaki uses to tote his Jasmine drive. For power users on the go, Felix tells us it's a Halliburton, and you won't find one at K-Mart. The 3-inch BORDEAUX model pictured lists for $415.

Well, I then figured I would try to look up Kim Basinger. Why not? The database checked found nothing. I even tried Kim Bassinger. Nope. Boy, we talk about Edsels, but not Kim. Then I tried Marilyn Monroe. Four hits! Can you imagine?

"Here's your chance to make a brief case about our very own anti-editor, John Dvorak. As the 17th century French poet/philosopher Renee Doubilard put it, 'It is easier to mimic that which we despise than to despise that which we mimic.' We don't know what he meant, either, but it gives us the chance to announce the first John 'I Can't Believe You Really Pay Him to Write That Stuff' Dvorak Write-Alike contest. If you feel he needs a piece of your mind, send us your Dvorakesque diatribe on the Mac-related topic of your choice. The best entries will be published in a future issue. Keep it short and, if this isn't a contradiction in terms, sweet."

Brief case? Oh brother. Hey Kristi! First of all, it's John C. Dvorak, not John Dvorak. Secondly, you're trying too hard to be cute. And, finally, I always wonder why they do these things without ever mentioning it to anyone. I cleared the screen.

Stunned by the ludicrous aspect to this discovery I decided to look up "Dvorak" on the database and see what I got. The machine came up with 266 citations. I rolled my eyes and turned off the machine. Well, at least I beat IBM, I thought to myself as I reached for the Lafite. ■

John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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